Jet Propulsion Laboratory
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4800 Oak Grove Drive
Pasadena, California 91109-8099
(818) 354 4321

JPL

July 29, 1998

Refer to: 98045SF.DOC

Mark Ripperda
U.S. EPA, Region IX
75 Hawthorne Street, M/S SFD-8-3
San Francisco, CA 94105

Subject: RPM Meeting Minutes from July 16, 1998

Dear Mark:

On behalf of the National Aeronautics and Space Administration (NASA), I am pleased to provide the minutes from the RPM Meeting of July 16, 1998. As always, the minutes are open for comments.

If you have any questions or comments regarding these minutes please feel free to contact me or Judy Novelly at (818) 354-0180 or (818) 354-8634 respectively.

Sincerely,

Charles L. Buril, P.E.
Manager, Environmental Affairs Office

Enclosure

cc: Peter Robles, Jr.
Richard Atwater
Steven Niou

bcc:
K. Lievense
B. Lathrop-Pino
S. Pool
N. Walizer
P. Zbylut
B. Meltzer
J. Novelly
R. Roberts
M. Wolfenbarger
cc: D. Gant

Mark Cutler, Foster Wheeler
Vitthal Hosangadi, Foster Wheeler
B.G. Randolph, Foster Wheeler

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Richard Gebert
Cal EPA
1011 N. Grandview Avenue
Glendale, CA 91201

Subject: RPM Meeting Minutes from July 16, 1998

Dear Richard:

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Sincerely,

Charles L. Buril, P.E.
Manager
Environmental Affairs Office

CLB:klp

cc: Peter Robles, Jr.

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California Institute of Technology
4800 Oak Grove Drive
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July 29, 1998

Refer to: 98045SF.DOC

Alex Carlos
L.A. Regional Water Quality Control Board
101 Centre Plaza Drive
Monterey Park, CA 91754

Subject: RPM Meeting Minutes from July 16, 1998

Dear Alex:

On behalf of the National Aeronautics and Space Administration (NASA), I am pleased to provide the minutes from the RPM Meeting of July 16, 1998. As always, the minutes are open for comments.

If you have any questions or comments regarding these minutes please feel free to contact me or Judy Novelly at (818) 354-0180 or (818) 354-8634 respectively.

Sincerely,

Charles L. Buril, P.E.
Manager
Environmental Affairs Office

REMEDIAL PROJECT MANAGERS' MEETING

NASA/JET PROPULSION LABORATORY

16 July 1998

ATTENDEES:

Charles L. Buril, JPL

Alex Carlos, RWQCB-LA

Mark Cutler, Foster Wheeler

Richard Gebert, DTSC

Vitthal S. Hosangadi, Foster Wheeler

Stephen Niou, URS

Judith A. Novelly, JPL

B.G. Randolph, Foster Wheeler

Mark Ripperda, USA EPA

Peter Robles, Jr., NASA

Reported by: Lester R. Linn, Jr., CSR 1054

Pasadena, California
July 16, 1998
10:08 A.M.

BURIL: Welcome everybody. I think everyone knows each other, so we don't need introductions around.

Let's go ahead and jump into the first one on the agenda, the status of the Calgon pilot. Where we're at right now, we have got a contract with Calgon and basically we're waiting for them to finish the work that they're doing for the San Gabriel Valley Basin right now. That's over in -- what is it? Baldwin Park?

ROBLES: Dalton.

BURIL: The Big Dalton site. That site has very little VOCs, in the tens of parts per billion, and perchlorate at about 60-some odd, plus or minus a few. Thus far, after talking with the technicians that are working the site, they appear to have some very, very positive results.

In fact, the system is basically running hands off. They don't have to do a thing to it. It runs itself, which is the kind of thing I'd like to be able to have for an ultimate kind of system,

something you don't need to worry about, someone there tweaking it on a regular basis.

Their test there is supposed to be complete the end of next week, which is, I believe, the 27th. And we are expecting to have them move here on our site the week of August 3rd. Now, that's the mobilization and getting things all set up.

Foster Wheeler is also providing support on this particular program. They are supplying me the groundwater pumps and some storage tanks for various things and some good advice kind of in the background as to how things are getting put together. We anticipate right now that sometime during either the week of the 3rd or the 10th we will actually be processing water through the ISEP system. In that regard, we are currently planning to discharge to the storm sewer, which I wanted to be sure that I made mention of. Our current sampling schedule for the discharge out of the ISEP system is, if memory serves correctly, twice a day for the entire time that we're operating the system.

RIPPERDA: That means you fill up tanks and then you discharge the tanks twice a day?

BURIL: No. Actually, no. We're just going to

be discharging directly. The tankage that would be required to do that would be huge, just huge. So we're going to be sampling it twice a day on a running basis.

Everything that's come out of the San Gabriel site so far, just based on verbal conversations, has indicated the stuff is better than the water we get out of the ground, as it is. It's lower conductivity. The nitrates are almost non-existent. Perchlorate's gone. VOCs are gone. The stuff is ready to be bottled and sold in the store kind of thing. It's exceptionally good quality water.

I just wanted to verify that that approach thus far is still acceptable to everybody and just kind of offer up an invitation to all of you to come up and see the system. I think it would be very valuable. Alex, you've already seen it in Baldwin Park. The system that we have here at JPL isn't going to be any different. In fact, it is exactly the same equipment. And I'm very hopeful that we'll actually see some very positive results out of this thing because we would like to implement some form of remediation as soon as possible and this is kind of the silver bullet for perchlorate I'm hopeful of

seeing.

GEBERT: Chuck, do you have any information or literature on this process --

BURIL: Yes, I do. I have some down in my office.

GEBERT: -- you can give to us?

BURIL: Yes, I do. I have some down in my office.

GEBERT: I appreciate it.

BURIL: It will be no problem to provide that to you. I'm just trying to think. I may be able to get some of the original stuff from Calgon sent to you or you can make copies of what I have. Either way. Whatever you prefer.

GEBERT: Maybe the originals sent.

BURIL: All right. We'll get hold of Calgon. In fact, I'm looking at the clock because the project manager for Calgon is flying out here today and I'm meeting with her tomorrow. I don't think I can catch her, though. I think she's already left.

GEBERT: Okay.

BURIL: We can get some out here.

GEBERT: So I can get them before the test.

BURIL: Sure. I don't think that's a problem at all.

Any questions as far as the process itself goes? Overall we're talking about a two-month long test and we're going to be sampling at two locations here on Lab, our MW-7 well and our MW-16 well. Both of those have the highest perchlorate and/or highest VOCs levels on the site.

NIOU: Which are the two wells?

BURIL: MW-7 and MW-16.

GEBERT: That's the reason they were chosen because --

BURIL: Because they are the highest, yes.

RIPPERDA: Are you going to be producing from both at the same time?

BURIL: No. We're going to do one, then the other.

RIPPERDA: Like you're going to start more or less --

BURIL: You got it. Exactly. We're going to start off with the lower concentration of perchlorate to see how well the system responds to that. It's basically a 10-fold increase over what they're doing at Baldwin Park right now. Then we're going to be moving on to the next one, which is twice the concentration that our first well is. That's our MW-16. We're up near 1200 ppm there.

RIPPERDA: How do they think it's going to handle the 10-fold increase? Do they have to put in more, whatever, cells or units or change up the resin --

BURIL: The thing that they're anticipating right now is that it will probably require a greater amount of regeneration.

Is everyone familiar on how ion exchange works?

RIPPERDA: Pretty much.

GEBERT: More or less.

RIPPERDA: College chemistry familiarity --

BURIL: Yes. I got my trial and error at Edison in dealing with all the exchange technologies for boiler water and things.

But basically what they're anticipating is that the regeneration rates will increase. And depending upon the rate of exhaustion of the resin itself, based on the regeneration efficiency, we may have more change out of that. But that's really what the test is about, is to figure out just what that kind of regeneration rate and exhaustion rate is all about.

RIPPERDA: What kind of volume of concentrated brine are you going to end up with?

BURIL: Well, right now we're anticipating only about half a percent of the total flow through the system. So on a daily basis, maybe about -- let's see. 1400 gallons or, excuse me, 6,000 gallons a day. Half a percent. So about three gallons.

CARLOS: Per day.

BURIL: Per day, yes. We've already made arrangements with a familiar disposal company to come in and just take that off.

Another part of this, though, that's somewhat exciting and something that someone, to my knowledge, has not done yet, and I think this makes the JPL pilot one of the most advanced in terms of what we plan to try to do, and that is we plan to initiate a bio, quote-unquote, remediation of the brine itself. We're going to use bacteria to try and break down the perchlorate so we can recycle more of the brine and thereby cut down the total brine waste that's generated.

Calgon has a proprietary process that comes from another company and they have been somewhat mute in terms of sharing a lot of information on that. But it appears to be a very similar process to what AeroJet is using. We're hopeful that the bacteria will be capable of

knocking the large majority of the perchlorate out of the brine stream and ultimately we end up with just a very small percentage of brine and some biomass accumulation that just gets overboarded and that would be the end of it.

That's basically it. I'd be happy to provide you the information. If you would all like to see the copy of the proposal, et cetera, I'd be happy to share that with you as well.

GEBERT: Okay. Yes, I'd like to see it.

BURIL: That's not a problem.

RIPPERDA: In terms of discharge to the Arroyo, like we talked before, you don't need a permit because it's pursuant to a CERCLA action.

BURIL: Right.

RIPPERDA: But I still want to talk to Alex. And even though you don't get a permit from the Regional Board, I wrote a letter that included a lot of the discharge requirements --

BURIL: Sure.

RIPPERDA: -- that they would normally include in a permit. So you can go ahead and just like plan to do it. But you can take a look at this --

BURIL: Okay. Great.

RIPPERDA: -- and see if there's any problems in

there for you. Basically I just took -- I cut and pasted out of similar permits.
BURIL: Total flow, pH, BOD. BOD we weren't planning, but we can do that. Suspended solids is not a problem. Oil and grease --
RIPPERDA: If there's things later like BOD that just are not applicable --
BURIL: That BOD is a little questionable. It's not enough of a concern to me to question doing it only because we're going to be doing these tests anyway. I don't see anything here that gives me a heartburn right off the bat.
RIPPERDA: When you say you were going to sample twice a day, was that for the full suite?
BURIL: No. That's actually only for the VOCs that we have here on site and for the perchlorate.
So as far as what amount of sampling we need to talk about in terms of this full suite of things, when you say once per discharge, I guess I'd ask what are you thinking of when we're talking about a continuous discharge like that?
RIPPERDA: Yeah. I was thinking once at start-up.
BURIL: Yes.
RIPPERDA: And then --

BURIL: A few times during the course of --
RIPPERDA: Right? And then maybe once a week or if you've got nondetects or maybe the semi-volatiles --
BURIL: Yes.
RIPPERDA: -- like, you know, do it one other time like a week later if you still have nondetects --
BURIL: Yes.
RIPPERDA: -- you don't sample it again. Then you switch wells --
BURIL: I have no problem with --
RIPPERDA: -- you sample for that. And again at start-up a week later, if you have nondetects then you don't sample again since it's only a two-month long test.
BURIL: I have no problem with that at all. Do you, Pete?
ROBLES: No.
BURIL: I think that's a great idea.
RIPPERDA: And if you do have detects for any of the semi-volatiles or any other constituents, that might be another analysis type.
BURIL: Sure. We could increase frequency then and understand what's going on. That makes sense.

Sure. That sounds fine. We'll just plan on it that way, then.
RIPPERDA: So because I'm not that familiar -- well, because I'm not familiar at all with Regional Board NPDES type permits and I just cut and pasted what I got from the Board you might --
BURIL: We have a NPDES permit here.
RIPPERDA: Just look through that to make sure that I didn't include anything that's onerous --
BURIL: Sure. That's great.
RIPPERDA: -- or irrelevant.
BURIL: No. Just looking, this looks like a standard GCMS scan of --
CARLOS: Standard monitoring requirements in NPDES terms. I'm working with Mark and also our NPDES folks just to make sure that there's nothing --
BURIL: Based on what I'm seeing here, I'm not seeing anything that causes me a heartburn. We already have an NPDES permit, as I probably mentioned. When it comes right down to it, this looks to be no different than what the requirements that are in that. We've got the Lab contracts to handle it and we have the funding available.
So once a week at start-up?

RIPPERDA: Yes.
BURIL: And then depending upon the nature of the analyses, we either cut back or increase as required.
RIPPERDA: Yeah.
BURIL: That sounds fine. We'll be in contact with all of you to be sure that you know what the analytical results are and we can make sure everyone's in agreement as to what needs to happen before we do it. Okay. Great.
RIPPERDA: I won't actually be issuing a letter until another week and a half. I'm out of the office all next week. So even though this is only a draft, I'll issue a --
BURIL: A formal letter.
RIPPERDA: -- a final letter and it will be in your hands --
BURIL: That will come probably just about in time for us to be able to set up, so that will work out.
RIPPERDA: You don't actually need the letter. If for some reason it doesn't go out you can start discharge, you know. It is pursuant to a CERCLA action and you have the RPMs, like the three of us, saying it's okay.

BURIL: Excellent. Excellent.
Well, that's the last hurdle on that particular program. I thank you all for helping us out on that one because now we've got just an opportunity to come up with something that may be a first maybe in California, maybe in the nation, when we start talking about this as a remedial action for a CERCLA site as opposed to wellhead treatment for a municipal well. The opportunity there I think is pretty good. Okay.
Let's go ahead and skip down to number 2. Does anyone have any other questions before I leave that?
RIPPERDA: Yes, I just have a question. If this is such a promising looking method, how come like at the Henderson meeting, you know, Calgon wasn't up there saying "Hey, we've got it fixed" or "We're close to having it fixed"?
BURIL: I wish I knew. I don't understand their reluctance to really jump out there. Certainly they've come to us --
RIPPERDA: Ion exchange is not like Greek science. How come there's not a bunch of other companies all --
BURIL: I almost wonder whether perchlorate is

being viewed as seriously by other entities as it is by Calgon. I think Calgon is just kind of out in the front of the pack on this one.
RIPPERDA: They just happened to get hired by Aerojet or be like involved at some level and --
BURIL: They got involved with us. And I know that they've been looking at the perchlorate issue either as a result of the AeroJet work or other things. I don't know that perchlorate has become as strong an issue in other parts of the country as it is right here in Southern California and Southern Nevada. I think we're kind of a perchlorate hot spot right now. Other companies may not view it as much as a profit kind of thing as Calgon might. Calgon is very well known around here. Out there in the Arroyo we have our Calgon plant for the City of Pasadena. I think they just saw this as an additional opportunity and jumped on it. And we're glad they did.
Any other questions?
RIPPERDA: One more question. What kind of like operating costs does a plant like that have as far as power requirements?
BURIL: That's part of what we're going to try to understand. But the operating costs and so forth

are very much in the same line as a denitrification plant. Exactly what that is in terms of dollars, I'm not sure.
RIPPERDA: Uh-huh.
BURIL: But the costs are not at this stage any more than any plant that uses ion exchange to remove nitrogen or nitrates in the water. And depending upon the resin or the regeneration --
RIPPERDA: Even though the treatment level is down in the like low parts per billion range.
BURIL: Yes. That's actually the kind of thing that we're trying to understand.
One of the things that maybe isn't real clear about the ISEP system is it is actually the system that they use for nitrate and nitrite removal at various locations throughout the country. It's exactly the same technology. It's just that it's being applied to perchlorate now as opposed to nitrate.
Because of that they aren't sure exactly how everything will work in varying concentrations, which is why Calgon is very enthused about coming here to look at relatively high concentrations of perchlorate as opposed to what they have in the San Gabriel Valley, which is relatively low. They're

just kind of getting a spectrum of what's going on as the perchlorate issue unfolds and may take an interesting turn toward the fall time frame when we get some of the results back from the -- what did we call that thing at Henderson? Stakeholders meeting? Was that what it was, Mark?
RIPPERDA: Yes.
ROBLES: Yes.
BURIL: Well, the work that Dan Rogers is doing, basically, and the EPA folks are doing. When we get some of that information back we may have a different road to take, but certainly basically we have started down some road. If we find something that works, then so much the better for us. If we don't need it, so much the better anyway.
RIPPERDA: But the preliminary indications from Baldwin Park are that it's not economically unfeasible (unintelligible) --
BURIL: Doesn't appear to be based on what they're seeing thus far. In fact, without having hard numbers, it's hard for me to speak directly to it, but the technicians that are working on the site are fairly enthused by what they're seeing. It's a very easy system to operate. It doesn't require a great deal of tinkering to maintain the effluent

quality, and that in itself is a big plus. As far as generation rates and things like that, they haven't calculated that out yet. Okay.

On to number 2, then. The extended soil vapor extraction test. Before we talk about that, I'd like to have Vitthal talk a little bit about the results we got from the first one and kind of give you a little update as to where we're at.

HOSANGADI: Some of these results you already have from our previous telephone call. I will just run through the initial ones real quick.

The first sheet basically shows the flow rates that we achieved for Test 1 and Test 2. As you can see, the flow rates were anywhere between 150 and about 270 cfm for Screen A, and then the higher one was when we applied a vacuum to all three screens. For each particular week, or rather for each particular set of results, the first flow rate is 100 percent vacuum, then we have the 75, the 50 and the 25.

The second graph on that page shows the flow rates when we did the second test. The red is for the first part of that test where we actually applied a vacuum to all three screens. And then the blue is when we applied a vacuum to only Screens B

and C, and that will optimize the removal.

Going to the second sheet, it shows the vacuum with the flow rate. The relationships are as we would expect. Nothing new there as such.

Sheet 3 shows the concentrations, the flow rates and the removal rates. And again, as we have discussed the last time around, if you look at the average concentrations across the four days, the concentrations are almost the same. So in other words, when we reduce the vacuum by 75 percent and the flow rate dropped as a result, the total removal rate dropped by the same amount as the flow rate dropped. And we saw pretty much the same effect in all the four configurations where we tested A, B and C and A, B, C all together, the concentrations were pretty much the same across the board when we reduced the vacuums.

The next sheet shows the VOC removal rates for Test 1 and Test 2. Some of this information is actually from the previous sheet. Again, you can see the removal rate basically drops pretty much with the same rate as the flow rate. The removal rates ranged anywhere from around .04 pounds per hour to as much as .15 pounds per hour in Test 1. And then during Test 2 they were right around

.1 pounds per hour, which translates to about 2.5 pounds per day on a continuous basis. That's just for the carbon tetrachloride and some of the Freon and possibly some other low levels of VOCs. So right around 2 1/2 pounds per day you can expect on the next phase of the test.

The next sheet shows just the VOCs removed for Tests 1 and 2. We pulled out right around a little more than -- somewhere between 10 and 11 pounds for all of Test 1. And then Test 2 we pulled out around 72 pounds, the carbon tet plus the Freon.

BURIL: So you pulled 72 pounds cumulatively over the course of a little less than a month.

HOSANGADI: Yeah, for Test 2. Then when you look at both tests around 80, 83, 84.

Again, this is based really on the concentrations coming in. There might have been periods of time when the concentrations were much higher and we didn't really have a sample at that time. Because based on the analysis of the carbon samples of the exhausted carbon from the first set that we exhausted, we have pretty high levels of trichloroethene, whereas we don't really see much of trichloroethene in the samples that we collected. We were collecting them in a period, you know, maybe

every 8 hours or 12 hours. So we feel that there might have been a spike when we were not collecting the sample. When we went through lab results we didn't really pick TCE up, but it did exhaust the carbon. It exhausted the carbon at a rate higher than would have been predicted by just carbon tet. So both those factors combined appears to be that even though we are presenting 82 pounds, the total removal might have been significantly higher.

BURIL: It could have been more.

HOSANGADI: The next sheet, that just shows the baseline sampling at the vapor extraction well. The first one on April 9th is before we started the tests. We actually started the tests on the 13th and then we collected the sample at the end of each week. So, for example, the sample on 4/17/98 is when we applied a vacuum on Screen A. And you can see that Screen A actually did drop significantly, but, you know, screen B and C were pretty much the same.

Then we ran Screen B. And there, you know, the Screen B concentrations didn't really drop. As a matter of fact, they show a slight increase, and so did Screen A and C. Then when we ran Screen C again we saw a drop in all of the

concentrations. The reading on 5/8/98 is actually the -- just after we finished the fourth week of Test 1 and then we started the long-term test. And then June 9th, toward the end of the test we actually saw no concentrations in the vapor extraction well. But when we came back a week later the concentrations had gone back up again.

GEBERT: So that's the rebound?

HOSANGADI: That's kind of the rebound. That was right around the time when we decided we would actually extend test further, so we just did two rounds of the rebound. The actual rebounds will be done at the end of the next phase of Test 2. But as you can see, the concentrations in the last two rebounds were pretty much the same. So kind of the rebound concentration, if you will

The next page is the normal vacuum responses from Test 1. They show the response from Zone A, B and C. As you can see, the .01 normalized responses are around 160 feet, which mathematically would be defined as the radius of influence.

The next page on is where the interesting results actually show up. These are the vacuum responses when we started doing Test 2 and this was roughly the time when we decided to actually monitor

wells that were further away than the wells that we had originally planned. In fact, that was right around the time of the last RPM meeting. In fact, I think Steve had a chance to look at the response on Well 27, which were showing pretty high responses. That's when we decided to step out further.

The rest of these graphs basically show the responses of some of the wells at different distances from the extraction well. The first one is Well 25, Zone A and B. The well is about 53.8 feet away from VE-1 so obviously there is a good response.

I'd like to draw your attention on this graph in particular to May 27th. You can see that distinct drop. That was when we had to shut the test down for about a period of 24 hours and try to see which wells actually demonstrated that same drop. We figured that that would be another way of looking at which wells really were showing the response, because we were seeing responses in wells that were pretty far away.

Now, on this graph you'll notice that after we started the thing back on, which was on the 28th, Zone A doesn't show that high a response. That was because we had shut down Zone A at that

time. So only Zone B and C were operating after the 28th. And that's pretty obvious on that same sheet when you look at the vacuum responses in Zone B. After we started it up on the 28th, you can see that all the responses went right back up pretty much to the same level that we were -- that they were before we shut the test down. And then again, you can see on June 9th when we shut the test down, all of the vacuum responses dropped right down.

Now, this is important, because as you go through the response in the other wells you'll notice that this effect was shown on wells that were a significant distance away, in fact, as far as for 700 feet away.

When you go to Well Number 27, which is 216 feet away from B-1, if you look at Zone A, just look at May 27 you will see that they all dropped down and then they kind of went back up. Again, like I mentioned earlier, at that point onwards the A well was not being subject to the vacuum. So Zone A did not go all the way back up to the levels that they were before they dropped down.

But if you just go down on that same page, if you look at Zone B and Zone C, they all dropped down on May 27th , and they all went right back up

to about the same level as they were before we shut it down. Then, again, when you look at June 9th, they all dropped back down. The same goes for Zone C. Now, this is 216 feet away. If you remember on Test 1, we showed that the response was at least 160 feet away.

At 538.7 feet away for Well 37, again, when you look at Zone A it looks a little bit questionable, maybe because of the fact that we shut Zone A down at that point. But then when you look at Zones B and C you'll notice that the responses did, indeed, go right back up both for Zone B and for Zone C.

When you look at the last sheet, which is 771 feet away, again when you look at Zone A the responses didn't really go back up the same way. They were, in fact, going up and down, so Zone A may not have been impacted. In any case, we were not really applying a vacuum on Zone A. But when you look at Zone B and Zone C, sure enough, on May 27th the responses go all the way down and then they pick right back up, and then when we shut the system down on the 9th all of them went right back down.

BURIL: Amazing. I don't know how many folks have been in vacuum extraction work in other

locations. I personally have done it for a number of years in the petroleum industry, and I was thrilled when I got 150 feet of radius.
HOSANGADI: Exactly.
BURIL: 700 feet, this is fantasy time. This is just unbelievable. But the data don't lie. They are showing us a fairly decent response that far away, which is why we question it so strongly, and strongly enough to extend the test as we've already discussed and agreed to. If, indeed, we find out that in the extended test we do have this kind of radius of influence, vapor extraction becomes a very, very easily implementable kind of remedial action, something which I would recommend to NASA that we implement immediately.
I have my serious doubts that we'll see this continue as the water table drops and other conditions, what I'll term, normalize. We have seen -- Mark, correct me, if it wasn't a historic high water table, it was getting close. Am I correct?
CUTLER: Yes.
BURIL: So the chances of it being the same are fairly small, in my opinion. It's because of that that we don't want to base a design on what it is

that we're seeing now, because theoretically we could probably put three wells on the site and clean the entire site, and that doesn't really make a whole lot of sense, not for 176 acres.
HOSANGADI: And basically what the next phase of the test will allow us to do is, you know, duplicate the effect of when we shut the thing down for about 30 hours back on May 27th. We'd like to have the ability to keep pulling for maybe three or four weeks and turn it on for a full week and then see what -- the responses are at the different wells to make sure that what we're seeing is really true.
BURIL: Where we're at right now with the extended pilot is I've gotten everything from Foster Wheeler that I need now to be able to implement that. And we have the contractual vehicles to set it all in motion in the ponderous wheels of JPL. They are going to grind out probably about this time next week, which will give them the official go-ahead.
Basically I think we're looking at what, Vitthal? How much time between the time that we have a finished-off CWO to what we're bringing here on site?
HOSANGADI: They typically have been about 13

weeks from the date of the CWO. That has some amount of play in it if need be.
BURIL: So we're talking actually having something up and running probably in the middle to late October time frame. Is that correct?
HOSANGADI: Correct. And basically we've kind of gone through the vendor pre-selection, and so on so forth. So, you know, the vendor is already aware that you need to get going. So that length is cut down a week I bet.
BURIL: Well, anything that we can do to speed that process once you have the contractual vehicle in your hands would be a good thing, in my mind. Because I am very, very interested to see what we get from this. And even if 150, 200 feet turns out to be the, quote-unquote, design criteria that we establish, even that is pretty doggone good and it would still indicate that vapor remediation, based on the amount of removal that we're seeing, is essentially a very viable means of remediating the soil vapor VOC.
GEBERT: No argument about that. So you would run basically the same tests?
HOSANGADI: Essentially the same thing.
GEBERT: Do Test 2 again with presumably lower

water table?
HOSANGADI: Right. And also there are some minor differences in terms of the equipment. You know, for the first phase we ended up getting two systems with the permit limitations. And it then turned out that the second system that they ended up providing was actually capable of pulling only 100 cfm. So we pulled only about 300 cfm. And the design system would be able to pull about 350 cfm by itself at the maximum vacuum. So if the vacuums were lower, as they will be, you will be able to pull maybe 400 to 450 cfm if need be.
BURIL: Vitthal, answer a question for me, if you would.
HOSANGADI: Yes.
BURIL: What is the principal driver in terms of schedule when we're talking in the 12-, 13-week time frame?
HOSANGADI: Two things primarily. The equipment itself and the AQMD permit format. Now, we've got all the information ready for the permit, so the minute we get the go ahead I'll try and get it to you literally the next couple of days after that.
BURIL: Okay. Let me ask a question of the regulatory folks, then. Given the same kind of

approach that we have with the discharge, are we in need of getting this permit? I'm looking for ways to cut down time, basically.
RIPPERDA: You don't need a permit, because it's a CERCLA action. Even though, you know, it's the air board, and that's like not the water board. It's none of us in this room.
BURIL: Right.
RIPPERDA: You add -- you legally don't need the permit.
CARLOS: Even for the air board.
RIPPERDA: Yeah, even for the air board. It's like you do not need a permit, period. Although 12 weeks isn't that long and sometimes it's just easier --
BURIL: Yeah, that's true.
RIPPERDA: -- to get the permit and not get people arguing with you --
BURIL: Fighting with us.
RIPPERDA: -- fighting with you. So 12 weeks doesn't seem like that big a delay when the stuff's been there for decades. It's like, yeah, I work for EPA and EPA says you don't need the permit and I want to like show that I'm right.
BURIL: Yeah. That's --

RIPPERDA: But 12 weeks is not that bad.
BURIL: Okay. If for some reason we run into a snag with the AQMD for whatever reason, we may call upon you folks to support us in dealing with that. But I think in the interest of continuing good relations amongst all agencies and amongst ourselves I think we'll probably just pursue the permit as though it were required and go from there.
RIPPERDA: Yeah. If you have some kind of problem that makes you want to get out there immediately or much sooner or they have delays, we can go ahead and just do it.
BURIL: Okay.
RIPPERDA: And you can have the air board argue with me.
BURIL: Hopefully, we won't go to that.
Okay. That sounds fine.
RIPPERDA: What do you do with the carbon that --
HOSANGADI: Basically it would be profiled and then sent to Parker, Arizona to the U.S. Filter Weststates for recycling.
RIPPERDA: Uh-huh. Do they regenerate it or --
HOSANGADI: That's where the carbon from the previous testing will be going.

BURIL: That's Weststates' principal regeneration facilities.
Is it Calgon that has the one up in Washington that was shut down?
HOSANGADI: No. That was Cameron, Yakima.
BURIL: Okay. Yeah, that one turned out to be bad news, as I recall.
HOSANGADI: Exactly.
BURIL: Any other questions on the extended vapor extraction test that anyone has that we can try to answer?
ROBLES: Richard was kind of smiling when you said three wells. How many wells is it going to take? Give me a scientific well estimate.
BURIL: More than one and less than a hundred.
HOSANGADI: It kind of depends on what area you're trying to vacuum. Typically, if you were to take the area and then -- divide by the area of influence of one well, which is roughly the area of the circle, then that would be the minimum number of wells.
RIPPERDA: So what's your area of contamination and what's your current guess at your working radius of influence?
BURIL: Well, if you were to take the data --

RIPPERDA: Above 150, 200 hundred acres of --
BURIL: We got basically 200 acres of area that we're talking about, though that's not indicating we have the whole 200 acres as an area for remediation. But for the most conservative estimate, just to talk in round numbers, we didn't believe the data to the extent that it tells us. If we were just to say some 500 feet, I mean, divide that by 60 percent or by a third, so we're somewhere 500 feet of influence. Just trying to do the math in my head, I don't know if that's going to work very well, but --
RIPPERDA: I have a quick question about the radius.
BURIL: -- we're probably talking no more than about six or seven wells at the very most.
RIPPERDA: I have a quick question about the radius of influence. Like out at 700 feet you're pulling less than inch of water. How much flow rate is that? What's the actual mass of air that's being moved at your radius of influence of 700 feet?
HOSANGADI: That would need some calculations.
RIPPERDA: Like just because you can measure with a sensitive transducer a half inch of water, that doesn't mean that you're getting sufficient

flow rates out that far.
HOSANGADI: Right.
BURIL: That's part of the issue. That's part of the thing that we want to try to understand by going through a more detailed, longer-term test.
RIPPERDA: Uh-huh.
BURIL: If we were to make a very conservative assumption we could cut this back by a great deal.
I personally, in my experience in vacuum extraction, have never seen anything like this and the mechanism behind it is still something of a little bit of a mystery to us. The only thing that strikes me and that makes sense to me is that the water table is so high. I think we can all understand the mechanics of that.
As far as the actual flow rates out there, like you said, it's going to need to be calculated if we wanted to do that. But the fact that we would have -- you know, even cut it back to some degree, we're still talking about radiuses of influence that are three and four times what I would expect to see in some of the best instances.
HOSANGADI: The best I've ever seen was about 140.
BURIL: Yes.

HOSANGADI: That was in ideal -- almost ideal conditions in Albuquerque.
BURIL: I saw in a beach sand a radius of about 160. That was ideal. Worked out very well.
RIPPERDA: So this means you have a high permeability layer with some kind of confining unit over it so you don't have air just coming in from above.
BURIL: That appears to be at least part of it. Also, we have a confining mechanism of the water table.
RIPPERDA: So you have a somewhat narrow strip of --
BURIL: We have a narrow strip of stuff that you're drawing from, which is making it reach way out, is my theory. As this confining layer is removed --
RIPPERDA: You have a higher volume of air.
BURIL: -- you have a higher volume of air that will then begin to suck this in. And trying to understand what that volume should be for an, quote-unquote, ideal application for a remedial system is what we're trying to determine. If we were to base this on a 500-foot radius of influence I would bet that we aren't talking more than four or

five wells.
HOSANGADI: It's about 18 acres per well.
BURIL: Yeah. So I mean, we're talking, you know, a fairly minimal system. However, based on my own experience and that of consultants that I have, that just doesn't make sense, unless we have an exceptional site here.
GEBERT: Based on what I have seen in a site this size, as a ballpark guess, to answer your question, Peter, somewhere between five and ten, left field, somewhere in there.
BURIL: Ten would be an easy number to use. I would say that would be one that would be reasonably accurate. If we were to base everything on this one we could be at half that. If we took the data to the extreme we could be at a third of that. And designing a system that's based on what I term an anomalous condition of high water table, it's just not good engineering judgement.
HOSANGADI: And also the other thing, you know, depending on the timing, we might be able to also look at some of the soil vapor monitoring that goes on. Now we have the real effect of SVE on a particular location away from the extraction well. So hopefully that will, you know, allow some

additional information.
BURIL: That's a great segue.
B.G., why don't you talk to us a little about what you've had show up in the soil vapor gas tests that you've done. We've completed both rounds of the latest soil vapor and we have some results here we want to show you.
RANDOLPH: Basically what we've got here is relatively self-explanatory. We have finished the two rounds. I've included the same sketch map that appeared in the work plan and FSAP addenda just for your information to help briefly look at these tables and present the data and kind of get an idea of the location real quickly.
What I've got here on the first of the three pages is the first two rounds of, or the two rounds that we did on the first four deep-soil vapor wells a year ago this last spring, and it contains all of the contaminants that were -- I shouldn't say contaminants -- concentrations of the various chemicals that we've picked up for all of the new wells as well. They're listed on the second two pages. Wells 32 through 39 are the new wells and 25 to 28 were the first four.
This kind of gives you a comparison of

what we got at that time versus the first two rounds that we have here this year. You're going to have to remember that the sampling event are 11 months apart. So there are some differences and disparities and changes. To kind of help represent and give you a better summary, the third page, moving from the bottom of the pile --

BURIL: The one by itself.

RANDOLPH: Yeah. I just listed the four major VOCs where we got the most consistent hits and compared those with the first two rounds that we did in '97 versus the only round that we did here this spring, which would have been in May. It kind of gives you an idea of all three events, sampling events, that we have here.

And you have to remember, too, that this sampling event that we did here on Wells 25 through 28 in May of this year was during the soil vapor pilot test, extraction pilot test.

Of course, you might note, too, we did get some surprises in the nine new holes that we did put in. After we did set the bottom sampling tip several feet above the ground water table, we had five of them that were flooded. The groundwater table was still rising and we're hoping that maybe

able to get down into the parking lot. We didn't know if we were going to be able to.

BURIL: The difference is about what? 30, 40 feet difference?

RANDOLPH: Oh, probably 20 to 22 feet.

BURIL: So essentially the same location?

RANDOLPH: Yes. Right. I still think that's pretty much the heart of it. I think that up to the northwest it extends probably up to 33 and a little bit beyond. I'm not sure about extending as far west as 36 and 38, even though we do seem to pick up what I may refer to as background level of carbon tet and some other information. VOCs that we picked up in the soil vapor probes that we had back in '94, early '94, they're very low. This seems to be a continuing or pretty general condition throughout the Lab itself that we've been able to find so far.

And 39 seems to be having that particular background level. But yet, get up around 35, 34 and start squeezing back up into the heart of the Lab, the concentrations are much more elevated and they probably extend farther to the southeast.

BURIL: Okay. I think we'll need to all do a little more evaluation on the data. But it just takes time. I agree with what B.G. said just based

in a couple of months we can go maybe blow those with some nitrogen and see if we can't get them clear after the water table drops.

BURIL: So overall, B.G., we're looking at results, then, for new holes that don't show us anything in terms of any extra surprises per se in terms of soil vapor concentrations.

RANDOLPH: No.

BURIL: If you were to characterize the vapor plume on the site in terms of its extent, how would you do that based on this data?

RANDOLPH: I think --

BURIL: Is it bigger than what we've done? Less than what we've done? Concentrated in one specific area?

RANDOLPH: I think primarily it's in the area where we have the soil vapor pilot extraction test, we're right in the heart of it.

GEBERT: Which is where, B.G.? Is that the triang -- or the square there?

BURIL: The square.

GEBERT: That's the square there?

RANDOLPH: Yes. That square is actually located on Aero Road. That's where we thought we were going to have to put it to begin with. Actually, we were

on the little bit of time I've had to look at this.

For all intents and purposes, and again we'll need to do more evaluation, but for all intents and purposes, I think for determining the area that would require remediation, I think we may have it. And at its largest and its most conservative I would say we're talking to the line of -- north/south line around Well 38 to the west and somewhere around the property boundary to the east, to the fault on the north and about the east/west line drawn through Well 39 on the south.

Is that about the extent you were thinking of, B.G.? It sounds like that's where you --

RANDOLPH: Pretty much, yes.

BURIL: So from that standpoint, the characterization of knowing where to place remedial efforts, I think we're just about there, if we aren't there already.

RIPPERDA: I just have some kind of background questions about I think what you just said.

When you're talking about, you know, kind of like background, I guess, so now I'm going to ask about background. You know, that 38, 39, those wells kind of out towards the edge represent somewhat background condition of carbon tet at the

Lab.
Does that mean that carbon tet was kind of sporadically used all through the area and released, or does that mean that it was released at, you know, some kind of more centralized source and it's just kind of the migration of soil gas throughout the subsurface?
RANDOLPH: The ground around 38 and 39, that part of the Lab was not even developed yet at the time of general use of carbon tet at the Lab.
RIPPERDA: Uh-huh.
RANDOLPH: So I believe primarily to the north and the northeastern portions of the Lab, the older portions of the Lab, are the primary source for it and just over the course of the years, pumping of the groundwater and barometric pressure changes and everything else it has migrated.
BURIL: By pumping of the groundwater, B.G., you mean the raising and lowering of the water level?
RANDOLPH: Yeah.
RIPPERDA: So it's not that you have small scattered sources throughout the area, it's that you've got more of a centralized source and it's being carried with the groundwater and offgassing from the groundwater and just migrating through the

vadose zone itself?
RANDOLPH: I think so.
RIPPERDA: Okay.
RANDOLPH: But I think it probably originated from many sources that are located in that --
RIPPERDA: That are more in a centralized grid.
RANDOLPH: Yes. Right.
RIPPERDA: Okay. So as far as then scoping the areal extent of your remediation, I would agree you don't have to like try and pump wherever you have any soil gas. You need to pump where the sources are.
BURIL: Yes.
GEBERT: Does it look like it's all one plume to you, B.G.?
RANDOLPH: Pardon?
GEBERT: Does it look like it's all one plume, or does one chemical have one type of an area of a plume and then another one will have another one? Have you been able to --
RANDOLPH: You know, I can't really answer that. But trying to look at the first two rounds and just grouping the major VOCs that you do see, it seems to me like there could be a couple of places where there have been a different source. But I think

it's basically the same plume, but maybe the concentrations within that particular plume are higher in some areas than they are others.
BURIL: In fact, Richard, I think one of the things that struck us about wanting to expand this soil vapor effort was the distinction that we saw between the groundwater concentrations, particularly at MW-7 and MW-16. At MW-7 we saw fairly high carbon tet, moderate TCE, where the opposite was true at MW-16, where we saw fairly high TCE and moderate carbon tet.
So that kind of distribution made us wonder about that and that's why we expanded to the west to understand whether there was something else out there. It seems like there may have been different uses across different areas, but it still was focused up in that northern, northeastern portion of the Lab. As B.G. described, it kind of spread out over time with groundwater offgassing and pumping of the groundwater table and whatever else that might be a contributing mechanism.
RIPPERDA: As far as the sources, I think you kind of talked about this at the last meeting I was at, but I kind of forget some of these details.
Would the seepage pits that are kind of

described in the original like investigation of the site, would those be primary sources, or was it people just throwing chemicals out their back door of whatever Lab they were in? What's kind of the primary entrance to the --
BURIL: We think it's been the dry wells and seepage pits that were constructed here, because most of what we've seen as far as the operations go for the Lab gives us indication that people just dumped the materials that they were working with into the drains that were in the buildings at the time, or down the floor drains and so forth. Based on B.G.'s work, most of those were associated with seepage pits or dry wells or something that would take the material and basically treat it like a sanitary waste.
RIPPERDA: Like drains in the building were plumbed to a dry well or seepage pits.
BURIL: Right.
RIPPERDA: Were those like cesspools that were also co-plumbed with toilets and stuff?
BURIL: Yes.
RANDOLPH: Some were and some were not.
RIPPERDA: So a lot of them were cesspools and some of them were just dry wells for drains?

BURIL: Yes. We did locate a couple of places, actually three, if you look on the map, WP-1, WP-2 and WP-3, where --
RIPPERDA: Where are those?
BURIL: WP-1 and 2 are along the eastern boundary of the site.
RIPPERDA: Okay.
BURIL: WP-3 is up toward the upper left-hand corner. We did find some anecdotal information that led us to believe that those may have been something other than the cesspool kind of introduction into the environment. We specifically targeted those areas with the wells and so forth that we've got. And correct me if I'm wrong, B.G., you didn't find a whole heck of a lot.
RANDOLPH: No, we didn't.
RIPPERDA: So those are actual -- WP stands for waste pit?
BURIL: Yes.
RIPPERDA: But it could also be a cesspool or something?
RANDOLPH: No. These were areas where we -- that were described basically as an excavation or had been an excavation of some kind.
RIPPERDA: Uh-huh. So it wasn't where building

drains were plumbed to these?
BURIL: No.
RIPPERDA: These were pits --
BURIL: Right.
RIPPERDA: -- that possibly got just refuse or --
BURIL: Could have been anything. We don't know.
RIPPERDA: But as far as the source of the groundwater, those were most likely dry wells and some kind of --
BURIL: Yes.
RIPPERDA: -- plumbing-associated stuff that's more around MW -- the square kind of in between MW-16 and MW-7.
BURIL: Yeah. We've actually nicknamed the square in the past, if you look at MW-16, 13, 7, and I'm looking for 8 on this. MW-8, which is behind Building 303, isn't it, B.G.?
RANDOLPH: Yes, it is.
BURIL: We termed that the, quote-unquote, quadrilateral. That appeared to be the zone of highest concentration. It's right in that area of the quadrilateral.
RIPPERDA: So is it the investigation -- again,

you probably talked about this at last meetings and I don't --
BURIL: Sure. That's all right. Go ahead.
RIPPERDA: I get the waste pits confused with cesspools and dry wells.
BURIL: We kind of merge them together.
RIPPERDA: Did you go into those cesspools or dry wells and take soil samples underneath and --
BURIL: Where we could -- actually, most of these things have been abandoned for many years.
RIPPERDA: Uh-huh.
BURIL: And a lot of the buildings have been demolished. Some of these things have been taken out; where we could actually locate these things we did. Or if we couldn't get right on top of them we got as close to them as we possibly could.
The way that we understood that these things were built were to some fairly exacting specifications in terms of the construction materials and the manner in which they were constructed and so forth.
RIPPERDA: Not just an ad hoc cesspool.
BURIL: No, not at all. Some of the earlier ones may have been, but during the time that the Army was here we have specifications that give

fairly detailed instructions on how to build these things.
RIPPERDA: It's like the Army being the Army says "This is how thou shalt build a cesspool."
BURIL: Yes. In fact, B.G., did an incredible job of locating these things, because in a number of locations we actually hit brick that appeared to be the liner of the pits themselves. So we feel very confident that if we didn't hit right on, we were awfully darn close in every single location.
RIPPERDA: Uh-huh. But those aren't -- like I know TCE (unintelligible) are pretty mobile.
BURIL: Yes.
RIPPERDA: But it's like those aren't an ongoing source. They haven't been abandoned and silted up and they still have --
BURIL: No, no. All the plumbing has been abandoned to all of these back in the '60s, early '60s time frame. As an example, we found one that was down by Building 190, which is down here in this part of the Lab. We were repaving a road right behind Building 190 and along the side it. And someone said "Hey, what's that funny little circle sitting there?" when they found a brick circle.
Fortunately, the facilities folks here are

cognizant enough of those kind of things that they contacted my office right away. I went down, I looked at it and we dug down and we found a series of holding tanks which were basically septic tanks that then had a drain that went into two seepage pits, which were basically built exactly to the same specifications as the other ones.

We even got some of the brick sitting up in one of our buildings as a demonstration. It's a very nicely curved brick. Given its radius, it would make a nice circle. We sampled the material that was in the pits. We sampled the soils that were near the seepage pit themselves. We also have Well MW-10, although it's not shown on this particular map. Well MW-10 is right there, within about 20 feet of that excavation.

RIPPERDA: Down at Building 190?

BURIL: Down at Building 190.

RIPPERDA: That's outside of your -- that's like you say, it's clean --

BURIL: I was happy to see that --

RIPPERDA: That's outside of your contaminated area.

BURIL: -- all of them came in negative for VOCs and all of them came in at what I term background

concentrations for metals.

RIPPERDA: But that doesn't answer the question of, in your area of contamination have you like sampled around those seepage pits or cesspools or whatever you call them?

BURIL: Oh, yeah. In fact, that's where all the various soil borings and so forth were placed specifically to try to get either right in it or as close to it as we physically could.

RIPPERDA: Okay.

BURIL: So, yeah, it's basically been addressed through those. And then those were the ones that were converted into -- what was it? 24 of those that we put it into the soil vapor wells?

RANDOLPH: Right.

BURIL: And then we monitored those as well to see what was coming out of there in terms of soil vapor.

RIPPERDA: I guess this just kind of sticks in my mind, because at the Raymond Basin meeting you had asked Mark, you identified these pits 10 years ago and what have you done? You haven't even done anything with the pits. I just --

BURIL: You'll like this next one, then, won't you? In fact, Alex, you and Mark are both quoted in

this.

RIPPERDA: Really?

ROBLES: Yes.

BURIL: Yes. I wanted to talk a little bit about it.

RIPPERDA: Good? Bad? Indifferent?

BURIL: Pardon?

RIPPERDA: Good? Bad? Indifferent? Did we make fools of ourselves?

BURIL: Well, no, you didn't make fools of yourselves, but some of the comments might have been taken out of context, which is what I wanted to kind of understand.

RIPPERDA: It was actually taken out of context.

ROBLES: You need to read it.

BURIL: Yeah, you need to read it, obviously. It may be a good thing to just take a look at and I'll point out a few of the things that caused us a little bit of discomfort, not from what you folks said, but just because --

Well, here's the front page. "More than a decade after JPL contaminated local water wells, nobody is coming clean - and you still can't drink the water."

That's the tenor of the entire article. I

won't jump the gun on that.

Go ahead, Alex.

CARLOS: I think, to go back to the soil gas data, do you think it would be possible to contour, for example, each of the --

BURIL: Actually, we tried that once.

CARLOS: -- for each of the major compounds we have and for each of the sampling?

BURIL: We tried that once. It turned out to be a real -- it turned out to be a real nightmare because of the topography of the site. When you have certain things that are up high that you can draw a circle there, but then when you go further down and draw another circle and just the three-dimensional nature of this place just tends to make it very difficult. It's not like the groundwater that's all basically a flat surface throughout. We've got varying levels as a result of the topography. So contouring it, unless we took horizontal slices across the entire site and looked at those individually, it was a really difficult thing to try to understand. So we haven't tried that, as far as I know. We're not planning on it either; right?

RANDOLPH: No. It's a nightmare. I actually

had nightmares over it just trying to figure out how we could possibly do it. And trying it out, it just didn't work.

BURIL: We've thought about trying to do this and so on and so forth, the GIS system also, and we tried to work something out. The length of time it would take for us to set that up is just fairly prohibitive. So we haven't really pursued that per se. We've been more or less convinced, based on some of the data that we've had on soil types, and now that we have the extraction test data, that while contouring may be illustrative in one sense, but it probably doesn't lend any more information than what we already have, and that is that we think that the extent of the plume that needs to be remediated comes right in this area here and then from that perspective we're just faced with a design question, how many wells we need and where to put them and so forth.

RIPPERDA: (Unintelligible) contour, and I agree, you shouldn't contour something that's, you know, somewhat random. You just put the numbers in little boxes next to the wells.

BURIL: That we can do.

RIPPERDA: It's like instead of like 36, 36, and

then 16.

BURIL: We can try to do that. The only thing that I'll point out, it's only a question of clarity, is that we get so many numbers on the map that becomes very difficult to read, that's all.

RIPPERDA: Yeah.

BURIL: We can try. I'll encourage B.G. to go ahead and take a look at a way to do that.

RIPPERDA: Especially when you get some formal reporting, like an RI or something that is going to be administrative record document that's releaseable to the public and you don't want to hide in detail, so, you know, you have one map of carbon tet, one map of trichloroethene. (Unintelligible) major constituents so you show all the TCE numbers.

BURIL: Sure. As a matter of fact, we've done that on groundwater maps, haven't we?

RANDOLPH: Yes.

BURIL: We can do something very similar.

GEBERT: I don't see any PCE detected in any of the --

RANDOLPH: That's correct.

BURIL: Isn't that interesting.

GEBERT: Hasn't that been detected?

RANDOLPH: It has been in one of the earlier 24

wells we put in. Very, very, very low concentration.

GEBERT: And it's in the monitoring wells; correct?

BURIL: This goes back to an interesting scenario that maybe Alex and Mark haven't heard, but, Rich, I think you were involved in the very beginning when you came on with us, and that is that based on the data that we're seeing so far both in the groundwater and in now the soil vapor analytical work, that PCE doesn't seem to be our concern, at least in terms of us being the source. We can't find it here on site at concentrations that would indicate we are a source. In fact, the PCE appears to be coming from someplace upgradient. Exactly where and exactly how it flows by JPL or any other locations is something of mystery.

But we have had documented instances of PCE at the Valley Water Service wells, which are about a quarter to a half mile upgradient of us. And the concentrations there were several hundred parts per billion. As a result, they, quite honestly, were looking to us as the potential source, recognizing some of the groundwater reversal issues and so forth.

But we don't have it here on-site, I mean at least as far as anything we can find in the vapor or anything that we see in the groundwater. And, in fact, one of the reasons that we wanted to do more work in the southern part of the Lab and defining more of the groundwater with the last three wells that we put in was to try and understand, well, is there some mechanism that's doing this that we don't understand that may be creating the problem.

Based on all the data we have, our conclusion is that JPL is just not the source of the PCE. It appears to be something that's coming from an upgradient source or non-point source, however you want to look at it. And in fact, it's coming down through the area that I have affectionately termed "the foothill funnel" between the hills of JPL and the hills of Flintridge. It basically comes right down past Oak Grove Park into the Arroyo Seco area and is then pulled in by groundwater pumps for the City of Pasadena, Lincoln Avenue and so forth.

I'll pass along as a point of interest that the Rubio Canyon well, which is even further south and further east than the most southerly City of Pasadena water supply well, has been shut down because of PCE contamination. There are 8 parts per

billion over there. And most of the other wells to the north have had their PCE concentrations basically drop off. I think that can probably be explained through a tremendous amount of water that's been inundating the area and recharging the aquifer and they have spreading going on and so forth. That makes some sense to me.

The fact that we've never seen any concentration of PCE on the Lab that would be above an MCL, yet we see greater than MCL in the City of Pasadena wells, as well as now the Rubio Canyon well, leads me to the fairly obvious conclusion we're not the source. We can't make it up as we go along. We still don't know what to do about that. PCE is something that we'll probably deal with just as an outcome of any remediation that we do here on site.

ROBLES: If we have a remediation and it's a matter of PCE going by and we suck it up, that's fine. We're not going to go after PCE.

BURIL: That's where we're at with our vapor sampling and the extent of the soil vapor extraction test.

I already waved this thing around a little bit. Why don't I go ahead and pass it out.

Does anyone else have any other question on the soil vapor stuff?

I think everyone is probably interested in this one here. It's an interesting article, to say the least. Let me explain about the Pasadena Weekly. It is a free publication that's sent out to the folks -- not even sent out. It's actually just made available.

ROBLES: You see these on the sidewalk.

BURIL: Yeah, you see these on the sidewalk kind of thing. I honestly don't know if they have a, quote-unquote, circulation. But, for example, we had a newsstand that gives these things away here at JPL, right at the Visitor Control. In fact, that's where we got our copy of it. It was right there at JPL Visitor Control.

These folks have a circulation, reportedly, as you can see up here in the upper right, of 35,000. And my understanding is that -- is this the one that's associated with the L.A. Times now?

NOVELLY: I don't know who bought them. I know somebody new just brought it and they're looking to make some changes.

BURIL: I think it may be the other newspaper in the area, the Pasadena Star News, that was bought out by the L.A. Times. This came out a week ago today, as a matter of fact.

CARLOS: Remember I called you that someone interviewed us.

BURIL: Yes. I remember you did mention that.

ROBLES: Karen Bicos.

BURIL: Bicos, yeah.

CARLOS: One thing I like about the picture here is monitoring well with magnetic gauges measuring groundwater

BURIL: Yeah. I liked that too. I liked it especially when I saw the magnetics were reading zero, too. I thought that was pretty good.

HOSANGADI: And actually those are the A and the B wells, going from left to right, or from right to left.

BURIL: This is actually Vitthal's test and I think he tentatively identified that as what? Well 17?

HOSANGADI: 27.

BURIL: Excuse me. 27, yeah.

HOSANGADI: I think that's what it was.

BURIL: So it's kind of interesting. I will share with you an interesting sidelight to this, and

that is that we did not supply this picture of the well to the newspaper. It was provided outside of our knowledge, because these folks wanted to come in and take a bunch of pictures and JPL declined them access to do so.

I encourage you to read the story, in particular, some of the quotes that were attributed to both Alex and Mark. I think that there's factual concerns potentially, depending upon what was actually said. But certainly the way it was portrayed in the article, I feel like I have to give you folks the opportunity to defend what you see here because it seems to me like it was taken way out of context, as the way that I read it when I first read this thing and said both Alex and Mark said "Cleanup's at a dead halt. There's nothing we can do." I just don't believe you folks actually believe that to be true.

RIPPERDA: No. Unbelievable.

CARLOS: No.

RIPPERDA: I'm scanning for my name here and 90 percent of what I said isn't even in a quote. It's just like "Mark Repperda, EPA's -- "

ROBLES: This comes out to the point of we have a community relations plan. But when the newspapers

come in with this, I've talked to -- myself and my boss are quoted in here, which they were here for --
BURIL: Bob was quoted in here too?
ROBLES: Yes. Olga Dominquez and myself.
BURIL: Oh, Olga. I thought you meant Bob.
ROBLES: And they were taking it out of context. I thought they were looking at how is the program going, and are you going to continue the program and so on.
I told them what the issue was and I kept emphasizing that we have concern for the human health and that's why we're doing the work and we've mitigated the human health factor, this issue, that drinking water is the major concern. That's what we're dealing with.
We said it, but it didn't come through. Because the whole title was "you can't drink the water." The purveyors of water are saying "We have always given everybody water that meets drinking water standards, period." That's never come through this article.
So the question comes in now, because you see this is part of five lawsuits that are pending. And the question that comes in is, yes, we can deal with the community. But these newspapers, I'm at

the point right now where I'm just going to tell them "Sorry. I have no comment. Because you guys take everything out of context."
CARLOS: In fact, there were some questions that was not even included in the article.
ROBLES: Right. My thing is I believe that as an RPM committee I think it should be our policy that from now on if they want an answer from us it should be on an official basis. It should come from the committee, not from the individuals. Because, you see, they'll come and take everything that they want and just --
CARLOS: Pull out the information they want.
ROBLES: Right. And they can skew it. You know, it's a classic, when did you stop beating your wife. It doesn't matter what you answer, you're just found guilty. In this case that's the same problem here. They'll ask a question and take what they want to use. They already had the headline, you know, "you can't drink the water."
Well, that's not so. You can drink the water. It meets standard. Is it pure? That's a different question. So that's the key. And that can't never come out. And what it needs to be is that we need to crank up our community relations

with a fact sheet to go out and argue against this.
BURIL: In fact, you've actually touched on something that we've talked about internally, and that is that we've reached a milestone in the program overall and we've completed the remedial investigation work for groundwater. We've basically completed it for the Operable Unit 2 sources. The RI draft for Operable Unit 1 is due to you folks in just about two months. And so I think we're probably at a crossroads now of letting the public know where we're at and what it is that we think we're seeing with this water.
ROBLES: We should do it in a fact sheet.
BURIL: I agree.
GEBERT: When was the last time you issued a fact sheet?
BURIL: Oh, probably the last time was a year plus ago.
ROBLES: So it's a perfect time for us to do that, to refute this, to show what the program is and to say it, you know, and to get the purveyors of water on line as well.
BURIL: I think that dealing with the purveyors of water is certainly something we should, you know, give them an opportunity to look at the fact sheet

and have some opportunity to comment on it.
RIPPERDA: They can't be happy about this either.
BURIL: Oh, no. They're really ticked.
ROBLES: But I really think that what should be addressed in the fact sheet is that the Pasadena Weekly was not factual with their facts and the statements were taken out of context. They won't like it. But from now on whenever a newspaper, and I have an article on my desk about the Star News, and that was even worse. The Star News was talking about the RPMs and the PRPs that are involved here and so on. They skewed that whole issue up. It's whenever they need something filled, they say "Okay. Six months. Now is the time. Let's put a Superfund article in the paper and get everybody fermented."
GEBERT: Yeah, I think you're going about it the right way as far as issuing a fact sheet.
ROBLES: Let's get out with a couple of fact sheets on these issues.
GEBERT: The other alternative you said if the reporter calls, you have no comment.
ROBLES: No.
GEBERT: That's really not -- unfortunately this is a fact of life.

ROBLES: Right. And say "No, I don't have a comment, but I will send you a fact sheet on the information." That's how it should be. So any time they call you or me we say "Here's the fact sheet. There it is." They're still going to skew it. You got to understand it, you know, if it don't bleed it don't read. That's now they view it. We're never going to get out of bad press. But at least, then, it's consensus and it's not taken out of context.

BURIL: I think if you read this page here, kind of the crux of the two big show-stopping issues are on the bottom of the picture there. "As new chemical discovery brings JPL toxic cleanup to a halt, NASA accuses Cal Tech, Army and Pasadena of not paying their shares." Both of these statements are incorrect and inflammatory.

What they're referring to is an I.G. report which NASA and Cal Tech took great exception to. But regardless, they are the I.G., inspector general.

ROBLES: Right. They have the I.G. reports. We disagree with the I.G. report. They even asked me, "You're going after Pasadena." I said "I can't make any comments now. I'm actually doing negotiations. I can't do that." But they still take it.

BURIL: Anyway, it sounds to me you folks were taken out of context.

ROBLES: Taken for a ride.

BURIL: And certainly it's something I wanted to be sure you were aware of and certainly our folks at Cal Tech. And I've been in a couple of meetings now with legal folks, public affairs folks and so on to talk about, well, do we want to even try and push back at this, and the fact sheet was actually the mechanism that we came up with.

RIPPERDA: So no letter to the editor?

ROBLES: No.

BURIL: That may not come. It may come some other time. But at this point it's being viewed as probably just giving them more fuel to throw on the fire.

ROBLES: The fact sheet will be the best thing. And the fact sheet I think we have a larger circulation.

RIPPERDA: The fact sheet would not mention this paper, would it?

BURIL: Not likely, no.

RIPPERDA: Because you've scared me when you said the fact sheet to refute it.

ROBLES: No, no. I don't want to -- no.

RIPPERDA: Okay. Good.

ROBLES: If you start throwing stones at one another the public just "What's going on? There's something here."

Just say our program, what it is, get the purveyors of water on board from the standpoint of saying "Your water is safe to drink. It meets drinking water standards." If there's a problem with it, explain to them that your water is safe to drink. Don't talk about the issue about the article and don't talk about the issue about the Hodgkin's disease and so on. That's a court issue. Try and extrapolate, well, you know, she got Hodgkins's disease.

BURIL: And who's paying for what is not an issue.

GEBERT: No. Just the facts.

ROBLES: Just the facts. That's it. And just get it to every house that we can.

BURIL: We have a circulation of about 20,000 for the fact sheet and we have a smaller special circulation that's sent to the city council members and Raymond Basin Management Board members and so forth. That's what we were planning on doing. I'm glad that you made a big segue in going to this.

One of the things I'm going to ask for from each of you is, recognizing that you're going to have to bring other folks in as far as community relations review and so forth, but when we get you the fact sheet, it's been an unfortunate situation that oftentimes the fact sheets get bogged down in regulatory agencies, and whether that's as a result of anything, I don't know. But the last one took almost six months to get through the full process. Six months from now this is going to be old news and I don't really think we want to wait that long.

So just as a request when we do get that to you, and I would say probably within the next couple of three weeks we will have a draft to you folks, if you can accelerate your process to the greatest degree that you can so we can make this thing worthwhile both in terms of the timing of the project and in terms of timing this and anything else that comes up, I think it would be the greatest benefit for all concerned.

ROBLES: Of course, some of your community relations people would want to go, "Let's have a town meeting." No, it's too early. We have to come up with remediation of what we're going to do; not just a study, but exactly what we're going to do.

Almost a pre-ROD. I'm very concerned about particularly EPA community relations folks who want to have open meetings right now. It's the wrong time to do that.
RIPPERDA: I agree that you don't -- when you have a proposed plan, you have a public meeting, I don't think this kind of site calls for a town meeting. But I do know that my public relations folks are going to say "We've been asking you to do fact sheets for a year and you have been like poo-poohing the idea." And so --
BURIL: I think the best response to them, from my perspective, is to say "Look, we didn't have a lot more to say up until now because what we were doing was continuing with the work we needed to generate the RIs and everything else. Well, we're done with that. Now we've got a milestone. We're ready to talk to people about what we've done. It makes sense at this point."
Before we were just going to be saying "Well, we're still working, folks. We'll let you know when we're done." That's not saying anything. Now that we're done we have something to say and it's the right time to say it.
CARLOS: Well, I know EPA, don't you guys

prepare a fact sheet also for each site?
RIPPERDA: Not for a federal facilities, because these guys are the lead agency. So if EPA is spending the money in cleaning it up, we issue regular fact sheets. But for a federal facility, it's their money. They're cleanup lead, so it's up to them to do their own fact sheets as they see fit.
BURIL: And then --
RIPPERDA: But that's why my --
BURIL: As I recall -- I'm sorry.
RIPPERDA: That's why my public relations people, and James before me, James cares much more about it than I do. I think every meeting he'd be asking you guys for a fact sheet just because EPA is used to giving out quarterly fact sheets even if there's nothing to say. It's like just tell the public everything is still okay. Just a bland reassurance.
BURIL: Also, as far as the review process goes, I just want to kind of revisit the pecking order, if you will, and that is that obviously, Mark, you have Andy that you'll be working with.
RIPPERDA: Uh-huh.
BURIL: There used to be a lady that -- I know that Debbie and the folks before her have worked

with. I can't remember her name now, I guess she's not involved anymore?
RIPPERDA: Yeah.
BURIL: Okay. And then, if I remember the process right at the state level, the Regional Board had deferred public affairs considerations to DTSC.
GEBERT: Yeah, they don't do much participation at all. We have a staff of community relations people.
BURIL: Yes, I remember some of the folks at DTSC being involved. I didn't recall anyone at Regional Board, so I just wanted to make sure that was still the case. Obviously you'll get copies of everything. But as far as a formal review, the Regional Board has in the past deferred to DTSC and I assume that's still the case.
ROBLES: I'm also going to recommend to the Raymond Basin that they put out their own kind of information. They need to do it for their customers.
BURIL: Well, let me encourage you folks to read this thing. If you have any other comments, then, by all means let me know.
(Unintelligible exchange)
GEBERT: We have people in Sacramento, if you

get a call from any reporter you are tied and bound to call that person in Sacramento first before you say one word other than your name, rank and serial number to the reporter.
BURIL: There's probably a good reason for that.
GEBERT: We've had a lot of problems with this, too.
(Unintelligible exchange.)
BURIL: Richard, let me ask a question just for the sake of continuity. On the fact sheets in the past we have typically given all the RPMs', agency's names and phone numbers if people had questions that they wanted to do. Not only for your situation but as well as Mark and Alex.
Is that something that we should continue, or should we have a different phone number other than your own for people to call if they have questions when they've read the fact sheet?
GEBERT: No. It's the same. They should contact the RPM.
BURIL: Okay. That's fine. I just wanted to be sure that was still the focus.
GEBERT: Then it's up to the agency to --
BURIL: Figure out what they're going to do.
GEBERT: Right. Through their own channels now,

the calls.
BURIL: That's good enough.
Any other questions, comments, general disgust with this?
RIPPERDA: So what's the -- you have the RI coming out in a couple months.
BURIL: Yes.
RIPPERDA: I guess this is actually -- I'll wait until we get to number 6. Never mind.
BURIL: On the ATSDR Draft Public Health Assessment, I played phone tag with Mark Weber and ATSDR here for the last couple days and yesterday he finally got the voice mail back to me that led me to a schedule that they have in their house right now, but they haven't really talked to anyone about it. They're finishing up a draft, I guess it's what you call a draft final. This is the one that goes out for public comment. It's their tentative plan to have that released either the week of August 3rd or the week of August 10th. Their primary plan, Plan A, says August 3rd. A backup, in case it doesn't come together, is August 10.
I don't know from the agency perspectives what you folks like to do in preparation for this. I know that JPL/NASA is not planning anything

outright, but I'm sure that when something like this, quote-unquote, hits the street and will be advertised in various ways that it's available, that we will have developed, potentially at least, a response to query, what do you think about it? What's your thoughts on it, so on and so on? I just wanted to be sure that I brought this up to you folks so you're aware it's coming and you can very easily be in another situation of getting calls. Whether it's from the Pasadena Weekly or anybody else, I don't know.
The comments, based on what Mark was able to leave me on voice mail, basically did not change the overall conclusions of the initial draft report, which I think you all had a chance to look at. So there does not appear to be anything that we would term a surprise as coming out of this. It's just the next step in terms of completing the entire process. So be aware. If you have any questions, I think Mark's phone number was probably on that initial draft that got distributed. If you don't have it, give me a call and I can let you have it if you want to talk to him directly.
Any questions on that one?
Mark, why don't you talk to us about the

groundwater monitoring and the latest stuff that we've gotten so far.
CUTLER: What I'll do is, this is a draft report of the last quarterly monitoring event. This is post-RI data. The RI report, as Chuck will get into, we have a draft version in house that's going to go to Chuck in a week, a little more than a week.
BURIL: Actually, a couple weeks. But go ahead.
CUTLER: Yeah. Like the 29th, 28th. But this data is not in there. Chuck just got this report, so I didn't make copies of things. I just thought we'd show you since Chuck hasn't really looked it.
BURIL: I doubt whether there's anything here that's particularly scary. In fact, some of the stuff on perchlorate is rather revealing.
CUTLER: So what I thought I'd do is just go through some of the contour maps and if you had any questions we can go into it deeper. You're familiar with the aquifer layer concept that we did before. Basically we have three aquifer layers on the site, the upper layer, the upper 100 feet of the aquifer, the next layer is maybe 150 to 250 feet of the aquifer, and the bottom layer is the bottom couple hundred feet of the aquifer.
BURIL: Let me point out one thing, too, that if

you folks have some thoughts in terms of suggestions to improve the report from your perspective, please share them with us.
CUTLER: This is the first quarterly event that we have actually had data from the municipal wells. The timing wasn't very good for our event, but we threw on the closest data from your comments at the last meeting.
This is carbon tet in aquifer layer 1. As you can see, it's totally on site.
Carbon tet in aquifer layer 2. The concentrations are much, much lower, but it does extend off site. And as you can see, there's some carbon tet in the Lincoln Avenue well, the first Lincoln Avenue well. So we've extended the plume to include that well.
This is carbon tet in the third aquifer layer. Very low levels, basically at detection limit. Just off site.
This is TCE in aquifer layer 1. TCE has been detected in these wells up here.
In this particular you can see it's very low levels, but there again, the way they sample these wells, there's a lot of vacuums put on water, a lot of aeration going on.

Let me back up a little. We didn't use numbers for production wells as numbers to contour on. We used those numbers to help define extent of plumes. So there's TCE up here, TCE here. All the flow directions are heading this direction, so we have in a sense what we describe as a commingling of plumes. I mean there's no real separations. As you can see, the MCL is a little bit on site and a little bit off site.

Here's the second layer. The plume has moved. It's deeper a little farther down gradient. The MCL line is right here. Not very much above the MCL.

In aquifer layer 3, basically the same thing like aquifer layer 2, just a little bit deeper. Here's the MCL out here.

As you'll see with our flow direction -- actually, these wells are pumping into different aquifer layers. They're not in this, but they're being generated for the RI.

When these wells are pumping, the area of influence extends out to our Well 20 and so it appears in a drawing like this that maybe something is heading this direction. That would be the case when the pumps are off. But 90 percent of the time

these pumps are on and flow is actually in this direction in these lower aquifer layers.

1,2-DCA, it's only been detected on site. It has a very low MCL. 1,2-DCA is not normally used as a solvent. It's probably a breakdown byproduct of TCE. We put it on there because it is above the MCL.

Aquifer layer 2, that's the only layer that it was detected in, 1,2-DCA.

Here is PCE. PCE is kind of detected in a lot of areas at extremely low levels.

You can see the maps, a little bit of TCE in here, all up in here, and, of course, the big TCE is from upgradient.

BURIL: T, or P?

ROBLES: PCE.

CUTLER: I'm sorry. P. Thank you.

As Chuck pointed out, it was up over 200 parts per billion a couple years ago. Here it's 30s and 20s. It's never been above an MCL on site. And the flow directions, of course, are always in this direction.

BURIL: Mark, can you back up to that just for a moment.

CUTLER: Sure.

BURIL: Let me just point one thing out. If you look here and you have your flow directions like this, when these wells aren't pumping I wouldn't be surprised that the PCE would flow right past them. This is the well. I assume it was Los Flores. (Unintelligible) This is the one that's currently shut down. That seemed to be on a direct path.

CUTLER: Right. There's no connection with PCE, any plume. It's a very random, low level hit.

Here's PCE in the second layer. Just a wide area of very, very low levels. Nothing over an MCL.

And in aquifer layer 3 there is a little bit above an MCL in Well 21. There again, the flow levels. They're above MCLs here. It flows this direction.

BURIL: Interesting point, too, there is that the concentration that's above an MCL is very deep, which doesn't really follow. If JPL were a source you would expect it to be shallower.

CUTLER: Right. There's a big disconnect between the PCE detected here.

And then, of course, everybody's favorite, perchlorate. Here's aquifer layer 1. And you do know there has been perchlorate detected in these

wells up here. They inject Colorado River water when they're not pumping, and so this is a source of perchlorate at very low levels. Of course perchlorate on site. And very similar to the TCE, you can have perchlorate in this general area.

Here's perchlorate in the next aquifer layer down. Again the concentration is decreased and it does extend off site a little bit.

BURIL: I will point out that the Arroyo well for the City of Pasadena is still off line as a result of perchlorate.

CUTLER: Right. There again --

RIPPERDA: That's one well?

BURIL: Yes, that's one well.

CUTLER: -- there's the perchlorate in our upgradient well here kind of in the middle of the aquifer. There again, right in line with the screens where it's been injected up here so this is, we believe, the off-site source for perchlorate coming down through here.

And this is the on-site source of perchlorate and they kind of commingle, getting sucked toward the production wells.

Here's perchlorate in aquifer layer 3. Just a little bit deeper, centered around the city

well. It seems to -- when these wells are pumping, there again, flow is, even from Well 20, back this direction. It's keeping it from going down gradient.

That's the contamination.

BURIL: I'll point out a couple of other things that were reported at the most recent Raymond Basin Management Board meeting, which was what? A week ago Tuesday? Wednesday? When was that?

ROBLES: Wednesday.

BURIL: Wednesday. All of the production wells with the exception of the Pasadena Arroyo well had shown a decrease in perchlorate concentrations. The information, if I recall it correctly, is that only the Arroyo well now has concentrations in excess of the 18 part per billion limit. It is basically exactly the opposite of the scenario which Raymond Basin Management Board was trying to prepare itself for. They were quite concerned that perchlorate concentrations would rise dramatically and, in fact, may even create a greater concern for the ability to pump water and provide for their customers.

In fact, the exact opposite has happened. It's become very evident that with a great influx of water it seems apparently the generator of a very

small amount of perchlorate being pushed out. In other words, either through dilution or through change in groundwater flows or whatever, the perchlorate's gone to almost nothing in all of those production wells with the exception of the Arroyo well.

And everyone's breathing somewhat of a sigh of relief, although everyone's also still apprehensive about what happens as the water table drops. Since it did rise rather dramatically, the expected problem then, it didn't happen. Maybe the other side of the coin is true; as it drops they may have a problem.

That's something we're going to be finding out in the course of the next few months.

Okay. That's where we're at with the groundwater monitoring. Any questions on that?

We'll have that report out probably in the next couple, three weeks. I just had it in my hands yesterday. I'm in the midst of dealing with a lot of things on prime contract stuff, which I can't talk about because Pete's in the room.

RIPPERDA: How do the levels in the perched zone that you found in your vapor wells compare with the underlying aquifer? Or maybe you just have high

water levels that are partly underlying. How do the levels of contaminants in your vapor wells compare to the monitoring wells in the immediate vicinity? Are they similar or --

CUTLER: It sounds like there's two questions about the perched groundwater and the soil vapor?

RANDOLPH: Perched water.

RIPPERDA: The perched water is in your vapor wells; right?

RANDOLPH: Right.

RIPPERDA: How does the contaminant in that water compare to the contaminant levels in your groundwater monitoring wells proper in the immediate vicinity of his stuff?

CUTLER: It was pretty close. Where he -- where B.G. encountered perched water was very high levels of perchlorate and VOCs was right near -- it was his boring near Well 16, which has our highest levels of perchlorate and high levels of the other VOCs.

RIPPERDA: Uh-huh.

CUTLER: The other perched water that B.G. ran into had relatively low levels and he was right near the nearest groundwater well that had low levels.

BURIL: Which well was that?

CUTLER: Well 8. So it fit with what we're

seeing in the groundwater.

RIPPERDA: My primary question was near Well 16 where your levels were the highest, were your levels much higher than -- his levels and your levels. Were your levels higher than your levels?

RANDOLPH: The levels were very similar.

RIPPERDA: Okay.

BURIL: I understand the reason for the question and I think I can answer what I think is the concept behind it, and that is that, no, it doesn't look like we've found a source per se. It looks like we just had the same concentration, so it isn't a traditional source there.

RIPPERDA: Not the source or a source, but even just like something that's higher than current groundwater that's going to be more of a problem.

BURIL: More of a problem down the road. No, we didn't see that at all, which I was kind of glad about.

Any other questions? It's coming close to lunch time. We can either press on or we can take a break for lunch and finish up on the last couple things and go on from there. How do you want to do it?

ROBLES: Press on.

GEBERT: Press on. One more item here.
BURIL: Okay. Our RI/FS deliverables. This is basically just a heads up to everybody to be sure that you recognize what you've got coming down the road to you. I believe the date is September 19, and I'm sitting here wishing I knew, trying to remember. But September 19th of this year you will have delivered to you our draft risk assessment for groundwater Operable Units 1 and 3.
You'll also be getting the remedial investigation report for the groundwater units, Operable Units 1 and 3.
And we are then on the pell mell race of the schedules as imposed by the FFA. If memory serves correctly, the FFA gives you folks, I think it was 60 days to review that, both of those documents.
I know. It gets worse.
We then, having received your comments, we are obligated to have some form of a meeting to discuss them. Whether it be telecon or whatever is up to us, I think.
Subsequent to that, NASA/JPL has 60 days to address the comments, generate a response to comments document and provide the draft final report

for your review.
You then have 30 days to either accept it, technically -- let's just be technical for the time being. You have either 30 days to accept it or invoke dispute resolution. In actuality, I'm hopeful that we'll all be talking very carefully together on those 30 days and anything that is something that is easily taken care of at the draft final stage to get to final we'd be more than willing to deal with. If something is horrendously out of sync between what we think and what you folks are thinking, which I don't think is going to happen, by the way, but if that does end up to be the case, then we've got a more difficult situation we'll have to deal with then.
RIPPERDA: So you're willing to make changes, if they're acceptable to you, to a draft final without going through dispute resolution?
BURIL: We have done so in the past. It depends on the nature of it and so forth.
RIPPERDA: Some federal facilities are willing to do massive rewrites in the draft final, and some are saying like any change has to invoke dispute resolution.
BURIL: We don't want to be that inflexible, no.

GEBERT: Have you ever invoked dispute resolution?
BURIL: We came close.
GEBERT: But you haven't actually done it.
BURIL: But we haven't actually done it. The predecessors to each of you were probably very familiar with how close we came. And we did come awfully close.
I think at this particular point it looks as though the RA and the RI for the groundwater operable units theoretically will go final right about Christmas time.
ROBLES: What I would recommend is that you prepare your teams that need to review it, get them up to speed so that you could have some time together.
The other thing is that we should schedule at the next RPM meeting meetings after we hand them because we need to meet together; not just one, but a couple of meetings to resolve any issues.
BURIL: In fact, I wanted to make you aware that the FFA does call out the requirement of a meeting subsequent to the submission of your comments. So we definitely want to follow through on that. Again, that can be a telecon or a face to face

depending on how we want to do that. Then it's up to us, based on the interchange of information, as to how many meetings we need and for what purpose. But certainly over the course of the next few months I'd say that we should at least be planning no less than the monthly telecons we currently have in place and perhaps be prepared to increase the frequency to weekly, if need be.
ROBLES: Weekly if we have to, on certain subjects so we can meet the deadline.
BURIL: I think, as Peter said, getting your teams alerted to the fact these are coming in the door and they are running on the FFA schedule now and while there's ability to extend and so forth if there's need to be, I think it's good to have the heads up that it's coming through the door and everyone is on the same train going like crazy to the end.
RIPPERDA: Yeah. And I'll certainly let my -- I think it's the only two people I have to worry about, my toxicologist and lawyer -- lawyer looks at it for ARARs just to make sure you got them all listed there correctly.
BURIL: We'll hope so, yeah.
RIPPERDA: So I'll let him like, you know, have

me scheduled in for mid September. But I can't imagine this is that -- you're just looking at groundwater here and if you've got all these monitoring reports, the data seems pretty straightforward.
ROBLES: You just never know.
BURIL: From a technical perspective, yeah. But like we've seen, you just never know.
RIPPERDA: There's a difference between an RI report among like --
BURIL: Among technical professionals versus --
RIPPERDA: -- versus a newspaper article that's total bull shit. The risk assessment, it's like I'm not a risk assessor, but even that doesn't look that complicated.
BURIL: I don't think it will. It may be complicated by perchlorate.
RIPPERDA: Then you only rate what you know. The number that exists is 18 without really like the cancer risk range or anything associated with it, so all you can do is compare to a --
BURIL: The only thing that I would say that would be a confounding factor in the review of the risk assessment is whether or not the goal that was stated at the Henderson meeting for getting a

reference dose established for the perchlorate by October actually happens, because at that juncture everything changes. We don't have that now.
ROBLES: And I doubt that's going to happen. The Henderson made it very clear that even though the Air Force would want to do it, they're not going to have the forces to write it.
RIPPERDA: So like I don't know how you write that as far as like what's the list, perchlorate --
BURIL: We're writing it to the 18 parts per billion, as far as I know.
RIPPERDA: But you at least compare it to an action level. Even if you can't assign a risk to it, you call it an action level.
BURIL: And that's what we're doing.
CUTLER: EPA, I guess, does have a reference dose based on 18 mg/l. It might not be EPA, but the State's number.
RIPPERDA: Yes.
ROBLES: It's a provincial level. That's what you say, "We'll work to the provincial level until more data comes in," and then we have to revisit.
BURIL: That's right.
GEBERT: You have to work with what you have.
ROBLES: Right.

RIPPERDA: Yeah. And even, like the risk assessment for all the volatiles, it's like that toxicology is pretty standard, and you like calculate the risk and you do the cumulative for all the different chemicals, you present it and that may be in the acceptable risk range, but it's still above MCLs or whatever. So it seems like it should be straightforward.
BURIL: We hope so.
Okay. Any questions as far as what's coming down the pipe to us?
RIPPERDA: Yes. And then longer term what's the current schedule, assuming you meet the 60, 60, 30? Then what about the proposed plan, or not the proposed -- what about the FS?
BURIL: Mark, do you remember off the top of your head?
CUTLER: The FS has been temporarily postponed until this treatability study with Calgon really gets going. That was --
RIPPERDA: The last time we kind of talked informally --
BURIL: Yes. We had thought we would have the treatability study going by now. We're about a month behind. That's something that I'll share with

you, that was not our doing. That was Calgon's doing because they had their equipment at the San Gabriel site and San Gabriel had a pretty bad problem as far as getting their well up and running. Alex, maybe you remember. They said they had like a five-week delay because of the well pump that basically they screwed up. So we're running behind there.
The overall schedule, as I recall, was talking about like a six-month lag, wasn't it, approximately?
CUTLER: It might have been. I think we penciled in a date. That six months might have been what -- I think it was a two-month lag and then we moved it back because of the treatability study.
At the time when the original schedule was put together the treatability study wasn't anticipated. It was just VOCs.
BURIL: Yeah. And it was a paper study because it was so well understood.
CUTLER: Right. I think you're right. That sounds about right on where it is now.
BURIL: It's approximately a six-month lag. Without having the schedule here right in front of me, I don't know for certain, but that's what I

would anticipate. So sometime just after the first of the year is what we'd be anticipating.
ROBLES: Get that by the next RPM meeting, that date.
BURIL: Yes. Well, that's easily done.
RIPPERDA: Because a six-month lag from now would be the first of the year. A six-month lag from the RI wouldn't be until --
ROBLES: February.
BURIL: February. End of January, beginning of February.
RIPPERDA: Okay.
GEBERT: I made a commitment to my boss to have the RI/FS completed on OU-1 and 3 by June '99.
BURIL: You'll make that.
GEBERT: Can I have that in writing?
BURIL: No.
ROBLES: We've got to make it, too.
GEBERT: That's my deadline.
BURIL: Okay. I think that's doable, Richard. I think that's doable.
ROBLES: Our goal is to get an ROD by end of '99.
BURIL: I know. The key, of course, at this point, as our good friends in the Pasadena Weekly so

eloquently stated, is trying to understand what we do with our perchlorate. While the cleanup process is by no means at a halt, as is claimed in so many ways, the feasibility study will really hinge on what this Calgon study tells us, and then we'll decide whether there is something to be done, or something else to be done, based on that study. And it's the big key right now in sort of the overall approach in planning the schedule.
RIPPERDA: The best response to this is to just, you know, keep on -- ignore it kind of, but keep on the process. The best response to this isn't to respond to it directly, it's get your RI out, get your FS out, get your ROD out, and even if, you know, the Calgon study doesn't work, I've said this before, and I know you agree with me, but you have to push on with the FS and at least address what you do know. What you can. You know, like say what you can --
BURIL: What you can do or can't do.
RIPPERDA: -- and get that out there in the public, you know, we're making decisions, we're taking action. You've already taken the action, you just haven't formalized it, so it's easy for people to pick on you and say you've done nothing, when

actually we've done a lot. So the sooner you get an FS and a ROD the sooner you'll be able to say we completed our Superfund --
BURIL: Process obligation.
RIPPERDA: Yeah.
BURIL: I agree with that 100 percent. I think that that's where we're at. We're at the point of completion of the process for a lot of this. We're no longer in the dark on what we have here or what it is that we think we might have to do. The fact that technology is running somewhat behind where we'd like it to be in dealing with some contaminants is something we're trying to deal with right now. In fact, we're one the leaders in the country on that.
So I don't feel any particular pangs of remorse about having done what we have done thus far. In fact, I think we've done a pretty damn good job.
Okay. Pressing on.
CARLOS: The most recent submittal like the SVE pilot test report, what's the deadline for the --
BURIL: We haven't established one. We've done that kind of intentionally because we didn't want it to hold back the ultimate RI/FS process where we'll

end up having to key on that.
As far as the latest version of the report, the latest data, Vitthal, what was our schedule for the first half of our already completed SVE study? What was the schedule for providing a report on that?
HOSANGADI: I believe September.
BURIL: So we're still on track with that. I guess it's a question now, do we want to report out on the first part of this while the second is ongoing, the extended version? Or do we want to postpone submittal until we have both pieces and submit the entire thing?
GEBERT: For me, it would be better to wait until you have the whole thing.
CARLOS: Maybe put everything in one package.
RIPPERDA: Since there's no decision being made now except you are going to do an extended test, like giving a preliminary report to them --
BURIL: I tend to agree with you. You already know what the preliminary data say or the preliminary report is going to say, that is that we need for more information to deal with the anomalous design conditions that we see on the site. It doesn't look like we need to concern ourselves with

generating a report in September, but we'll need an overall one definitely to factor into the feasibility study for Operable Unit 2.
RIPPERDA: What's the kind of a schedule for the RI for soils per vadose zone?
BURIL: Do you remember, B.G.?
RANDOLPH: No, I don't recall. It was up in the air and we were vacillating back and forth on what to do with it.
GEBERT: I think it was about six months behind OU-1 and 3.
BURIL: That sounds right, Richard. I think February, March next year, if I remember correctly.
RIPPERDA: So about when we get the feasibility study we'll also get the soils RI within a month of each other?
BURIL: The Gantt chart for the schedule of these document reviews is just like a layer of hot cakes, one thing after another, just continuously from now until the end of next year. And it's a good piece of work for anybody. We're all going to have lots of things to do between now and then.
CARLOS: What was the SVE report submitted to us? I think I got that two or three weeks ago. Several reports.

RANDOLPH: Work plans.
CARLOS: Addendums?
RANDOLPH: Work plans.
BURIL: Oh, those were the work plans and addenda to the work plans and all the things that we wanted to finalize to make everything we've done already, quote-unquote, official. That's all that was.
ROBLES: I've got some items. I'm viewing, Chuck, a copy of the Edwards Air Force Base installation research and program support applicable and relevant and appropriate requirements software to determine ARARs.
What this is is a list of questions that a Superfund site asks and all of the ARARs fall out of it. This was done by the approval of all of the three folks at Edwards, so EPA, State and Water Board approve this method.
RIPPERDA: So as long as they know what they're doing (unintelligible).
ROBLES: The reason for this was that when Edwards went to the regulators and said "Give us your ARARs," they said "We can't do that. We don't know all the ARARs. We might leave something out. You figure it out."

So that's what they did. They figured out a software package, and basically what it does is ask questions. "You got wetlands?" "Don't you have wetlands?" "What kind of hazardous waste you got?" "What kind of levels do you have?" "Are people close to you? "Drinking water level?" You know, all those things. As it goes it just deletes the inappropriate regulations so that it's only those that apply.
I want Chuck to look at it and see if it works, and then we need to talk about this at the next RPM meeting.
BURIL: I was going to say maybe I can report out on it at the next RPM meeting.
ROBLES: Because, you see, one of the questions that's going to come up is, to the public, particularly with lawsuits, "How did you figure your ARARS out? You left something out." If we have a process that already looks at it, that has it and it's been approved through your organizations already, then that's easier to deal with.
RIPPERDA: That's all fine and beautiful. It makes your job easier. As far as like going to the public and saying we used an officially approved process by DTSC, Regional Board and the EPA, just

because our counterparts, fellow RPMs at Edwards --
ROBLES: Right. I understand.
RIPPERDA: -- said that's fine, that doesn't mean it's an official EPA, DTSC, Regional Board.
BURIL: We used a recognized method, and by doing so we reviewed it and found it to be acceptable. Not the method, but the outcome.
RIPPERDA: Yeah.
ROBLES: But I want you guys to look at it as well. That's the key. It's not that I -- I just don't want you to rubber stamp it. But I wanted to find something out there that has already been -- I don't want to reinvent the wheel. Because this has been a real -- since I've been here for four years, the question every now and then: ARARs.
GEBERT: Right. It comes up with every site.
ROBLES: And we go, how do we handle this? Who's going to provide it? Who's going to do the leg work to figure it out?
BURIL: An interesting one that may or may not come out of this, let me just throw a couple on the table here, one which may be somewhat confounding to us, and we discussed with all of your predecessors at one point or another, is the adjudication of the Raymond Basin. That was still something that was

kind of a "Gee, we don't know" kind of answer. I can tell you the folks from the Raymond Basin are going to be absolutely expecting to be part of the requirements that we must meet in order to deal with remediation.
ROBLES: In other words, the way we handle the water, where it goes to. That's the kind of thing.
BURIL: We have no rights to remove water from the Raymond Basin whatsoever. And as such, our influence on the basin as a whole has to be a net zero based upon that adjudication. So how we deal with that is going to have some fairly dramatic impacts on the feasibility study; how we get the water that's been removed, if we do have a pump and treat, back into the system so that there is a net zero influence.
GEBERT: The question is: Is it an ARAR or is not?
BURIL: Yes. And that's the spin, kind of a -- the crux of the question has been: Do we have to include it? Because if we do, we have potentially a much different kind of remedial scenario than we might otherwise have.
ROBLES: The second thing I have is, and I am going to give to Chuck that I want him to give to

you after he looks at it, is what is an administrative record. I need you guys to approve it. That's the big sheet. I want him to go over it and look at that, because ultimately once we get to a ROD we got to decide what is in the administrative record.
This, again, comes from Edwards. They sat down and asked this question again: What is the administrative record in the State of California? And we have to be very careful. Is it everything we have done? I don't think so. So this is the universe that looks at this, a template. But we have to approve it and look at it, because ultimately that is what's going to hold, particularly with lawsuits pending and everything else. So I want to make sure. I would like to, once it's looked at internally here, to give it to you and your legal staff.
RIPPERDA: Yeah, I will certainly give that to my --
ROBLES: Right. And then say "Do you agree with this? Do you think there's something that shouldn't be there?"
RIPPERDA: Or should be.
BURIL: Or should be.

ROBLES: Those are the two things I think we need to start working on, since we now can see the light at the end of the tunnel.
RIPPERDA: I just had a request from an attorney to get all of Stephen's and some guy who works with you, whose name I don't know, all of their comments that have been submitted to EPA over the life of the project.
So I immediately I called up my attorney, and like "Do I have to do this?" The response is, no, I don't, until they formally do it through a judicial discovery motion. Then my attorney really probably thinks about it. There's just attorneys crawling out of the woodwork.
ROBLES: Well, I'm getting those calls for document production requests. That's causing a great concern. That's the main issue.
RIPPERDA: Yeah. That's right. That will be nice, because, you know, I know that his comments are like nowhere close to being part of the administrative record. And there's the first level, I guess, part of an administrative record, anybody can look at it. Is it something internal like for me, EPA, that I may have to produce and it's like what sublayer of detail may I have to produce.

ROBLES: Well, I've talked with Region 5 through my experience in over 20 years at this, plus the legal staff at NASA and also at the DoD and Air Force. The bottom line is that the administrative record is the ability that if I come in as John Q. Public 20 years from now and say "How the heck did you to get to this point? What did you use to make this decision?" Those are the records that need to be in there. Everything else doesn't need to be in there. "How did you get those things?" The final document, not drafts, not your comments, not all that. The final documents. Okay. That's what we need. We need the minutes maybe. The key is those items, the technical stuff that I can look at and come and reconstruct the way that your decisionmaking process flowed. It fulfills the need of the Administrative Record.
BURIL: Just as an aside, you were mentioning about document production. I can sympathize tremendously. My entire organization is undergoing an influx of paralegals and they're going through virtually every single document we have in our possession, which is probably in the neighborhood of 6-, 700,000 pieces of paper.
CARLOS: We're receiving the same requests.

BURIL: So it's going to get uglier before it gets prettier, I'm afraid. My understanding is that there are other potential lawsuits, if they haven't already been filed, that are pending. Peter mentioned five. That's one more than I was aware of, so it sounds like it's already happened.

Okay. Let's visit briefly, then, the action items from last time around and make sure we got those closed. I'm going to hope they're all right here on the backside of this. Let's see here.

RIPPERDA: While you're looking, even though I hate the article, it's a great piece of cover art.

BURIL: It's a what?

RIPPERDA: It's a great piece of cover art.

BURIL: Yes, it is, isn't it. That was really something.

The action items that we had was that Rich Atwater was going to provide us some data from the various outside water purveyors. We have received that partially.

CUTLER: For perchlorate.

BURIL: We have received it for perchlorate. We have not gotten it yet for all VOCs. Is that right?

Unfortunately, Rich couldn't be here today, but we'll be passing that, continue to

request back on to him to make sure we have got the information.

RIPPERDA: On that subject, when you talk about your things being pre-RI or post-RI, like you said, this is post-RI data, which means, I guess, these results won't be included in the RI. How about the data that Richard is providing?

BURIL: If it's for the time frame that's covered by the RI sampling that we've done, it would be, wouldn't it?

CUTLER: What we did with the perchlorate, we picked the date that was closest to the RI. So I think there might even be April or May perchlorate data put in the RI. It's just the time we finally got the data and that result was closest for the January and February event than the previous perchlorate data, if that makes sense.

RIPPERDA: Uh-huh.

CUTLER: So in that one instance we did pull data from the RI.

RIPPERDA: So what goes into the RI isn't determined by when you got the data, it's by what time period the data represents?

CUTLER: Yes. It's the closest result to the time when the JPL data was generated.

RIPPERDA: Why can't the data, since you have it, why can't that go into the RI?

CUTLER: It did. It is. We couldn't wait. It was going on. VOC results have been fairly stable over the years. And I think since we're not using that data to contour on, we're using that data to help show extent of plumes, it's usable.

RIPPERDA: Okay.

BURIL: Okay. So we have that from Rich that we still need to obtain.

The next thing I have in this list is that we were going to get the ATSDR comments back from everyone who felt they had a need to comment, which we did. So that particular item is closed. ATSDR has already incorporated them and noted to me in a phone conversation that the comments were not particularly difficult to incorporate and thus far everything seems to be going very well.

And the last thing was, Mark, you were going to check with Perianne Wood with regard to her questions on radiation, a question that came to us. Do you recall that?

RIPPERDA: Yes. And I did talk to her and she said that she didn't have any more questions, that she had talked to somebody from here and she didn't

remember it like exactly enough to know if the report had actually been submitted or not. So her questions have been answered, yes. And then she didn't remember if she had gotten any kind of physical report, so she just suggested that some kind of report be made part of the administrative record or something like that.

BURIL: So from the perspective of trying to answer this action item, it sounds like we got it done. Is that your --

RIPPERDA: Yes. She had forgotten about it entirely. I had to remind her about it and then she like "Well, I don't have any more questions," so that's done. But then she had to make her additional point of "Well, by the way, radiology needs to have a report in the administrative record."

BURIL: Okay. That was all the action items from last time.

I think we're down to the point now of actually setting the next time for a meeting. I've got calendars here for August and September. Interestingly enough, the next scheduled RPM meeting, quote-unquote, is scheduled, if we follow the three-month time frame, would land on the 17th

of September, which is extremely close to when we'd actually be submitting the documents to you folks.
RIPPERDA: Three months from now is September? October.
ROBLES: October.
BURIL: It's October. We got the wrong calendar here. They didn't give me October.
ROBLES: October.
BURIL: Have you got October there? Thank you.
So we're looking at October 16th. 15th, 16th time frame. Week of the 12th, basically. The 12th is a federal holiday.
Does the week of the 12th sound reasonable to everybody as far as your schedules? Why don't we make it the 15th.
GEBERT: What day is that?
BURIL: Thursday.
ROBLES: That's a Thursday.
GEBERT: The second Thursdays of every month are our staff meetings.
ROBLES: This is the third Thursday.
BURIL: This is the third.
GEBERT: That's fine.
BURIL: October 1 is the first Thursday.
GEBERT: That would be fine, then.

ROBLES: So it's the third Thursday of the month. There are five Thursdays in the month of October.
ROBLES: So let's go ahead and set it for Thursday, October 15th. Perhaps a suggestion on locations?
RIPPERDA: Here.
BURIL: Here is fine? Okay. Here at JPL at 10:00 a.m.? Okay.
Let me go ahead and just verify, then, two additional things I think we should have on the schedule, and that is our telecons for the months of August and September. Currently we have the next one scheduled for Thursday, August 6 at 10:00 a.m.
ROBLES: That's a San Gabriel 9:30 a.m. meeting on the 6th.
BURIL: Maybe we want to change that one. What do people have available that is plus or minus a day of that kind of thing?
ROBLES: Can we do it Wednesday, the 5th? Is that okay?
RIPPERDA: Yes.
ROBLES: Why don't we move it to Wednesday.
BURIL: All right. Move that one. So Wednesday, the 5th. Can I request it at 10:30? I

have a 9:00 a.m. meeting that I can get out of by 10:30.
ROBLES: 10:30 a.m. telecon.
BURIL: Thank you.
Then in September, following approximately the same time frame, it's either going to fall on the week before or the week after Labor Day. What's your choice of poison there? Either the 3rd or the 10th.
ROBLES: I think it should be the 10th.
BURIL: That way we can be a little closer to document submission time.
ROBLES: But the 10th is the second Thursday and you have a meeting; right?
GEBERT: Right.
ROBLES: Let's shoot for the 3rd, then.
BURIL: All right. We can do that.
ROBLES: RPM telecon on the 3rd of September.
BURIL: That one can be 10:00 a.m.
Okay. Anything else anyone wants to bring up?
RIPPERDA: Just something like really small. Stephen requested that in the future, I guess like going from a draft to draft final, or draft final to final that the response to the comments be in a --

I'll let you explain it, if you want.
NIOU: A matrix, from comment to in response be listed in the matrix.
BURIL: I don't follow you at all.
Why don't you draw it on the chart there and we'll understand what you're talking about.
NIOU: Just a table. This is the comment. All it is, I'll give you SVE comment and this is JPL response.
BURIL: Oh. All right.
NIOU: This is a matrix.
ROBLES: And then if it's done again on the draft final and it's changed -- I know what you're saying. So you have the first draft as all the comments that come in and where does it come from and our response, and just continue. If that comment has been reformulated in the draft final it's put on that matrix or if a new one is added, and then that way you have a matrix of all of your comments and responses.
NIOU: Yes.
ROBLES: It's easier to read that way.
NIOU: Yes.
BURIL: We'll have to work together on that because I'm not sure how I would place an entire

response in a matrix.
RIPPERDA: It's just like a two-column table. You type in Regional Board comment and JPL response.
BURIL: That's the way I've typically done it for all the other ones we've done. I'll repeat it, an EPA comment, ta-da-ta-da, JPL response, EPA comment, JPL response.
RIPPERDA: We'll talk about it later.
BURIL: The last time we went around with a response-to-comments document, the response to comments was 120 pages long. So I'm hopeful we won't have that again. But even if we come close, putting it in a matrix format would be maybe even more difficult.
ROBLES: Usually what is done is, you may have 120, 200 pages of comments, but they're synthesized to small, you know, areas of concern, and then "See response" and so on.
BURIL: When we get there we can sure look at that, Steve. It's just a problem in trying to figure out how to accommodate that.
ROBLES: I think the idea, Steve, is that you want the matrix so that there's a column that says "Addressed."
NIOU: Yes.

ROBLES: Or "Not addressed" or "Not incorporated" or "Incorporated".
NIOU: And the result. Because they concur.
BURIL: Oh.
ROBLES: That's the key.
NIOU: There's no questions be asked.
BURIL: All right. I see. I see.
ROBLES: It's "Concurred," "Not concurred," "Incorporated," "Not incorporated."
BURIL: That's different than I was thinking of. Okay.
ROBLES: It's not an idea of writing the whole comment out there. I's just a synopsis.
BURIL: So EPA comment number 1; JPL/NASA response concurred. EPA comment number 2; JPL/NASA response concurred. Disagree, see such and such page of text for explanation.
ROBLES: Exactly.
NIOU: Or you have your explanation right at the --
BURIL: Depending on if it's small enough to slide in there.
NIOU: -- because of this, this, this. That's why we --
BURIL: I understand.

ROBLES: It makes it easier for dispute resolution for someone to come in there and say "Okay. How many comments do you have?" You had 200 and you only have five that are in dispute. Hey, this is a no-brainer, just small details. But you see the whole thing.
BURIL: I understand where you're coming from. That's a good summary way of knowing where the concerns might be. That's fine. I understand.
Okay. Anything else?
NIOU: One more thing.
RIPPERDA: Yeah. Go ahead.
NIOU: I'm just curious, what's the current idea planned on the SVW-36 area?
BURIL: I'm sorry. What?
NIOU: Remember there's a shallow aquifer, perched aquifer, SVW-36 that found high for perchlorate and TCE.
BURIL: We have discussed that at the last telecon.
NIOU: I just wondering any development.
BURIL: We have changed nothing. We do not plan to pursue that at all at this point.
RIPPERDA: Is that different than what I was asking B.G.?

RANDOLPH: No, it is not.
RIPPERDA: It's the same thing.
BURIL: It's exactly the same thing.
Okay. Anything else?
ROBLES: Your comment, what you're saying is that what you found as a perched zone is a mix of what you find in the well?
BURIL: Right. And it's based on that we don't feel it's a necessity to do anything else.
ROBLES: It's not a source or anything. It's just --
BURIL: No. If in the future we find there's a reason to pursue it, then we will. But at this juncture there's no reason.
ROBLES: Not a source or anything.
BURIL: No.
RIPPERDA: So in an RI, like, you know, even though this is data you've collected, it's still water data, so will you show the data from his perched water table in your RI in some way?
CUTLER: It's in there. The draft in our office now has it included.
RIPPERDA: Okay.
BURIL: Are we done?
Judy, why don't you run down the action

items for us.
NOVELLY: Today's action items, we're going to get some literature on the perchlorate treatment process to Richard.
Are you guys interested in getting that too?
RIPPERDA: Yes.
BURIL: So all the agencies.
NOVELLY: Mark Ripperda has given us a draft letter regarding discharge from the perchlorate treatment water in the storm drain, and after he gets back to his office in about a week he'll get us out a final on that.
Right?
BURIL: Right.
NOVELLY: B.G. is going to attempt to make a map showing the soil vapor results beside the sampling points on the map.
We're going to get the FS date to the RPMs.
Chuck is going to use the ARAR determining software and report back at the next RPM meeting.
NASA/JPL will review the administrative record list and then send that to the RPMs for their attorneys to review.

We're going to continue working with Rich Atwater to try to obtain the groundwater data from the Raymond Basin wells.
And our next RPM meeting is Thursday, October 15th at JPL at 10:00 o'clock.
Our next two telecons are Wednesday, August 5th at 10:30 and September 3rd at 10:00 o'clock.
Also, we're going to look at using a matrix to show response to comments rather than the regular typed-out responses.
That's it.
BURIL: All right. Thank you all very much. Appreciate your efforts, and we'll see you at least in October.

CERTIFICATE

I, Lester R. Linn, Jr., CSR 1054, hereby certify I am an appointed Certified Shorthand Reporter authorized under CCP Section 2093(a) to administer oaths.
I further certify that the foregoing pages reported by me is a true and correct transcript of the proceedings had in the above-entitled matter on the date specified therein, and that said transcript is a true and correct transcription of my stenographic notes.
Dated at La Crescenta, California, this 20th day of July 1998.

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ENVIRONMENTAL AFFAIRS OFFICE
MEETING ATTENDANCE RECORD

SUPERFUND RPM MEETING

July 16, 1998

Please print the information requested below and pass this sheet along to the next person. Thank you.

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